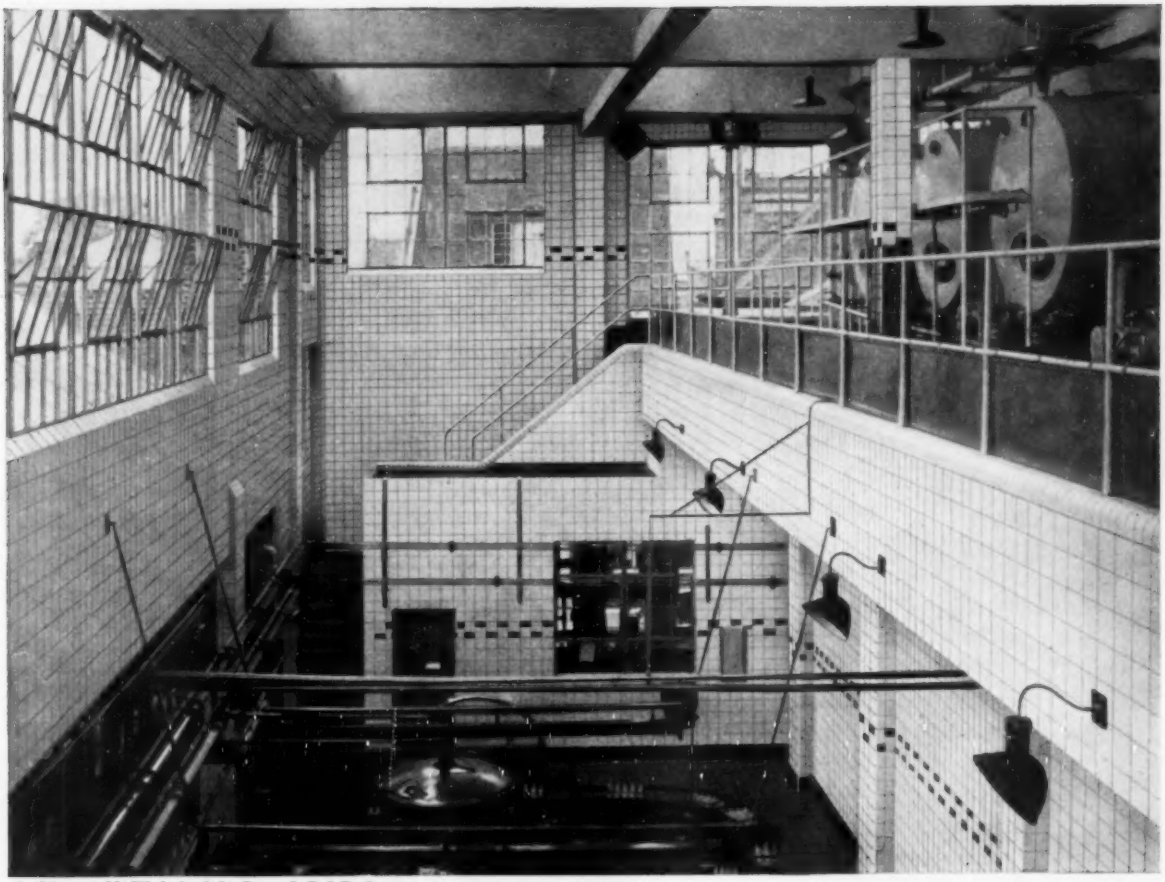
THE ARCHITECT & BUILDING NEWS

11 OCTOBER 1956 · VOL. 210 · NO. 15 · ONE SHILLING WEEKLY

- **STORE, SOUTHAMPTON**
- **SOLAR HOUSE, RICKMANSWORTH**
- **INFORMATION DIGEST**

PUBLISHED IN LONDON SINCE 1854



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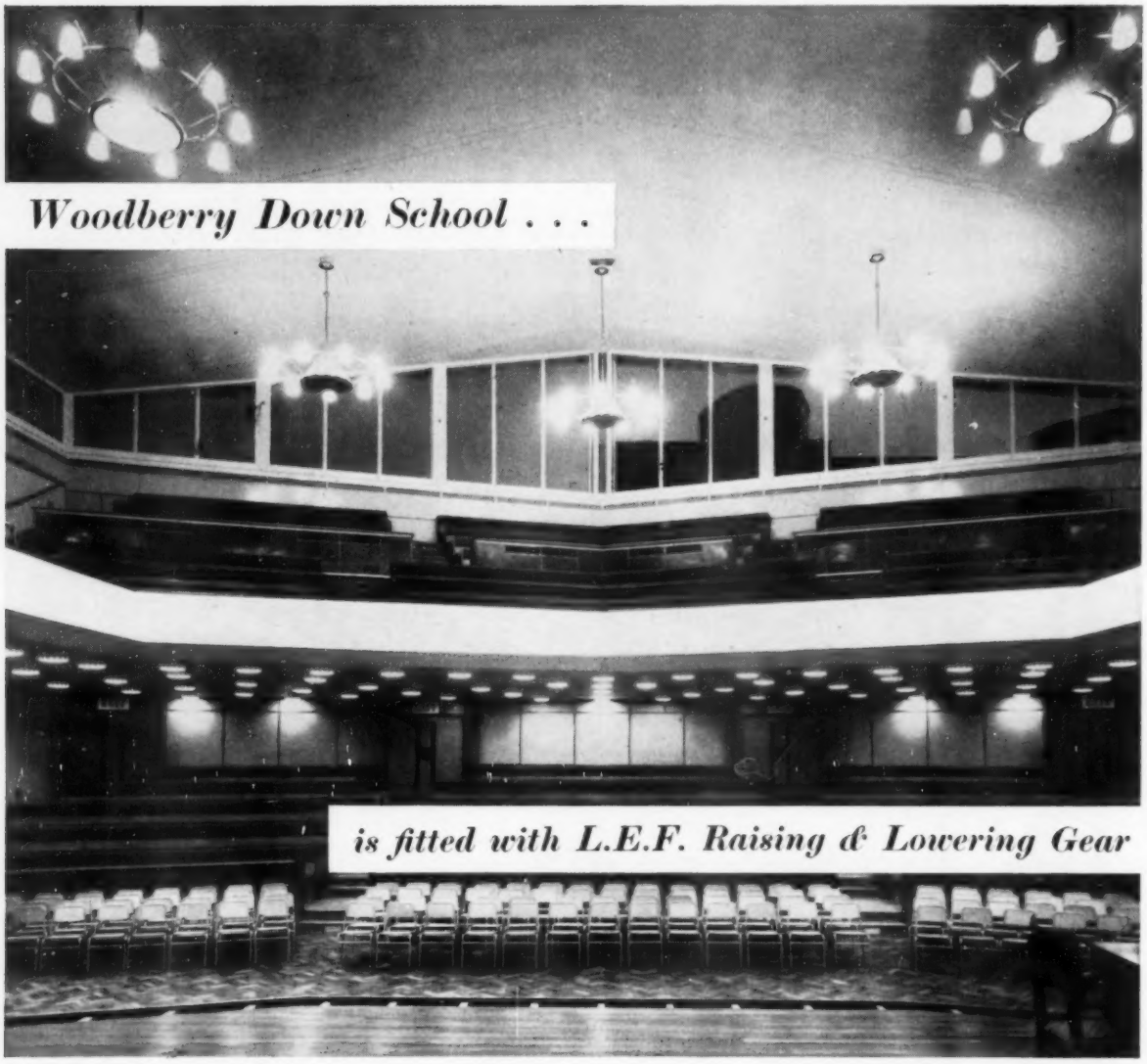

Woodberry Down School . . .

is fitted with L.E.F. Raising & Lowering Gear

THE means of servicing inaccessible lights in the Assembly Hall of this new school was given careful consideration at an early stage of planning by the Architect (Robert H. Matthew, C.B.E., A.R.I.B.A.) and the Chief Engineer L.C.C. (J. Rawlinson, C.B.E., M.Eng., M.I.C.E., M.I.Mech.E.) London Electric Firm Ltd., were consulted, with the result that they were able to supply Raising and Lowering Gear that was built into the ceiling with all working parts concealed.

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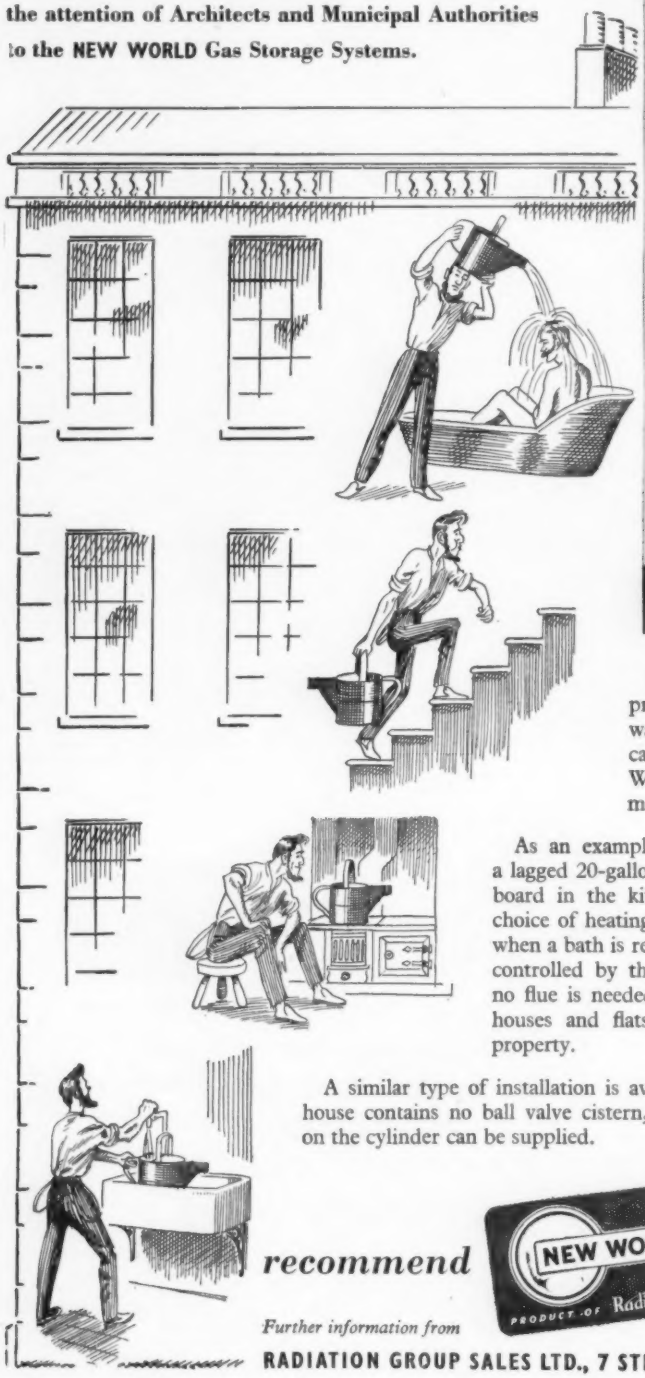

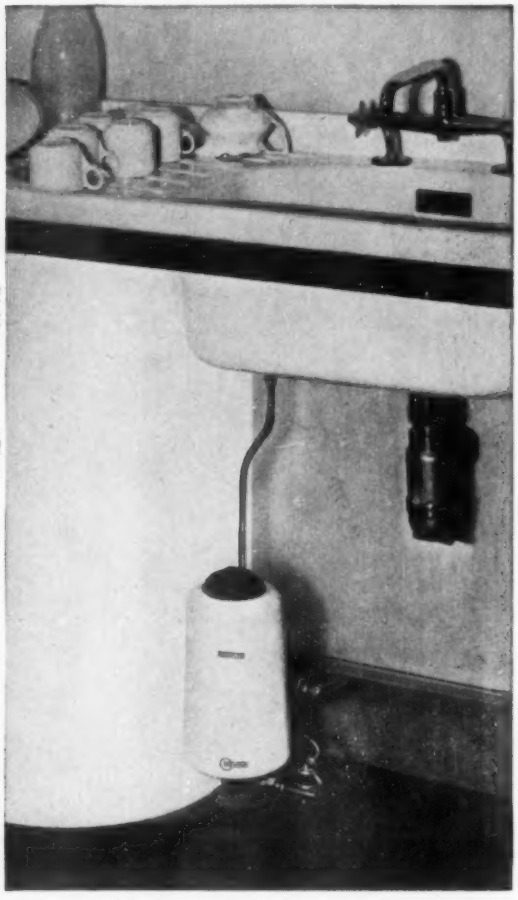

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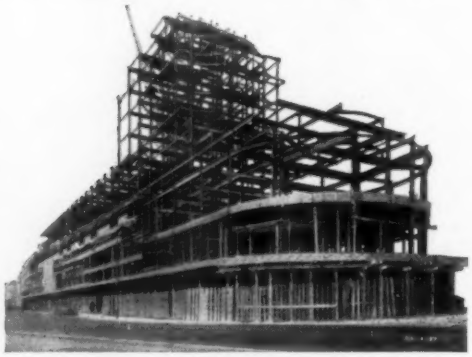

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Architect: Arthur Bailey, O.B.E., F.R.I.B.A.
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B136

ELLARD

ESTATE

SLIDING DOOR GEAR

The illustration on right shows yet another example of the use of ELLARD "Estate" Sliding Door Gear in the modern dwelling house. See how simple it is to convert a spacious room to one of a cosy and intimate atmosphere. The fingertip smoothness of door action offers immediate reduction of living space when desired with the additional advantage of fuel economy. Elegant appearance, ease of operation and long service are the main selling features of this attractive ELLARD Door Gear. Excellent design, moderate cost and maximum use of floor space make ELLARD Door Gear the obvious choice for both council estates and private houses.

RADIAL

SLIDING DOOR GEAR

Illustration on left shows ELLARD "RADIAL" Sliding Door Gear fitted to a private garage. Sliding doors are of great advantage in protecting cars against damage caused by accidental swinging of hinged doors. In addition, valuable working space is offered where it is most desired at the entrance to the garage. Note also how ELLARD Door Gear provides easy access to and from the garage by a personal entry door. ELLARD "Radial" Sliding Door Gear is low in price and gives long service without maintenance. This gear is also suitable for the larger openings of commercial and industrial garages

OVERDOR

GARAGE DOOR GEAR

ELLARD "Overdor" gear, illustrated on right, represents the best method of operating an overhead-type door, and it requires the minimum space, fixing time and maintenance. An entirely clear threshold is achieved, and both side walls are available for windows or shelves. "Overdor" gear is designed for doors from 6ft. to 7ft. 3ins. high and up to 200lbs. in weight. The door is safely balanced and can be opened and closed with ease. The width of the door is not critical but the construction should ensure that the door does not sag when in the raised horizontal position, and we suggest a maximum width of 10ft. The balance springs impose a maximum force along the jambs, thus relieving the building of all stress until the door is raised, when less than half the weight of the door is supported by the twin top tracks. ELLARD "Overdor" is therefore especially suitable for lightly constructed buildings.

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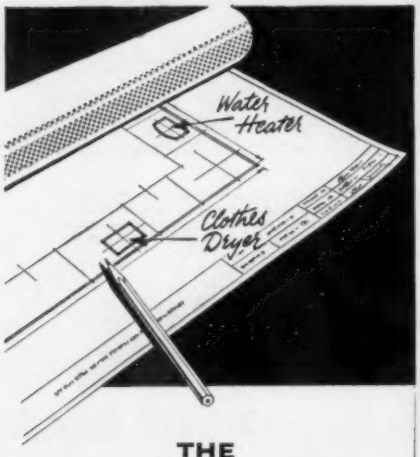
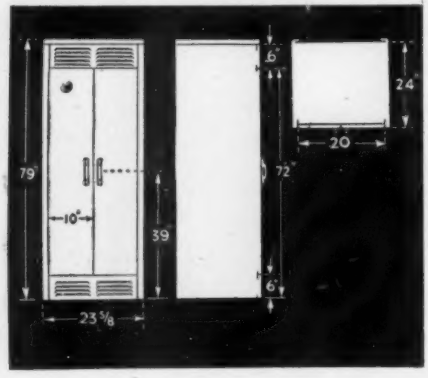
TWO POINTS TO REMEMBER WHEN PLANNING FOR KITCHENS



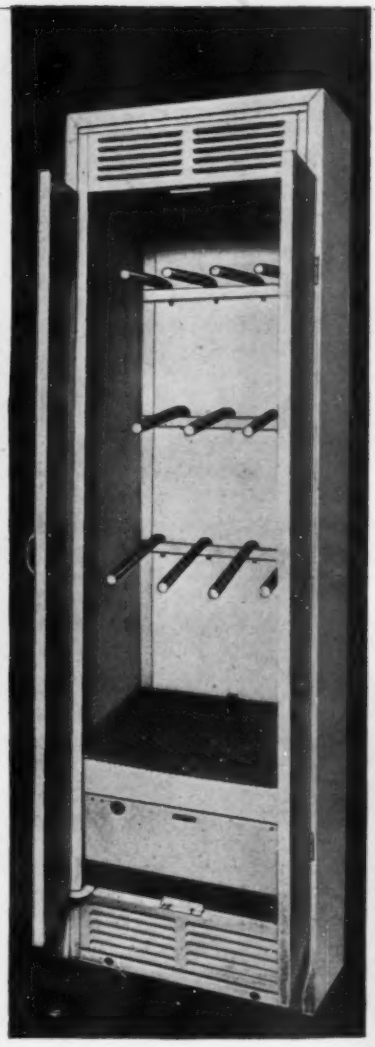
THE FLAVEL GAS-HEATED 'SUNTRAP' CLOTHES DRYER

(for single dwelling installations)

THIS CLOTHES DRYER is strongly constructed of zinc-coated steel sheet, finished in cream enamel paint. Fitted with double doors, and heated by means of a gas-burner unit in the base, the Dryer is large enough to contain an average weekly wash. The clothes are hung on eleven tubular bakelite rails at three different heights. A guard is provided above the burner unit and the gas-rate is controlled by means of a constant-pressure governor. Gas rate 10,000 B.Th.U. per hr. (20 cu. ft./hr. of 500 C.V. gas). Connection ¼ inch B.S.P.



The Flavel 'Suntrap' Clothes Dryer is constructed so that it can be supplied either as a complete unit or, alternatively, for building into a recess or corner by utilising the main frame assembly and such component parts as may be necessary.



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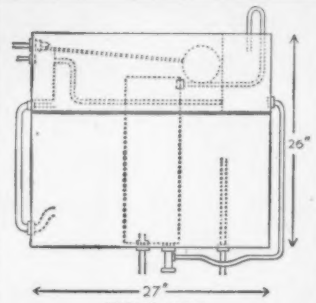
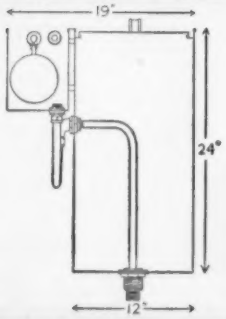


THE CALORIFIER



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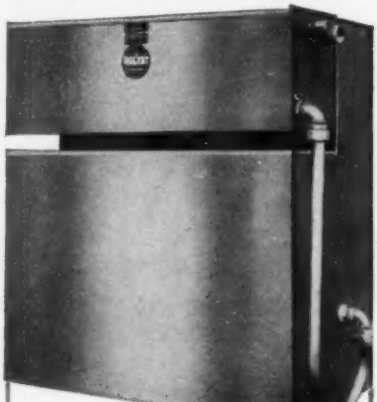

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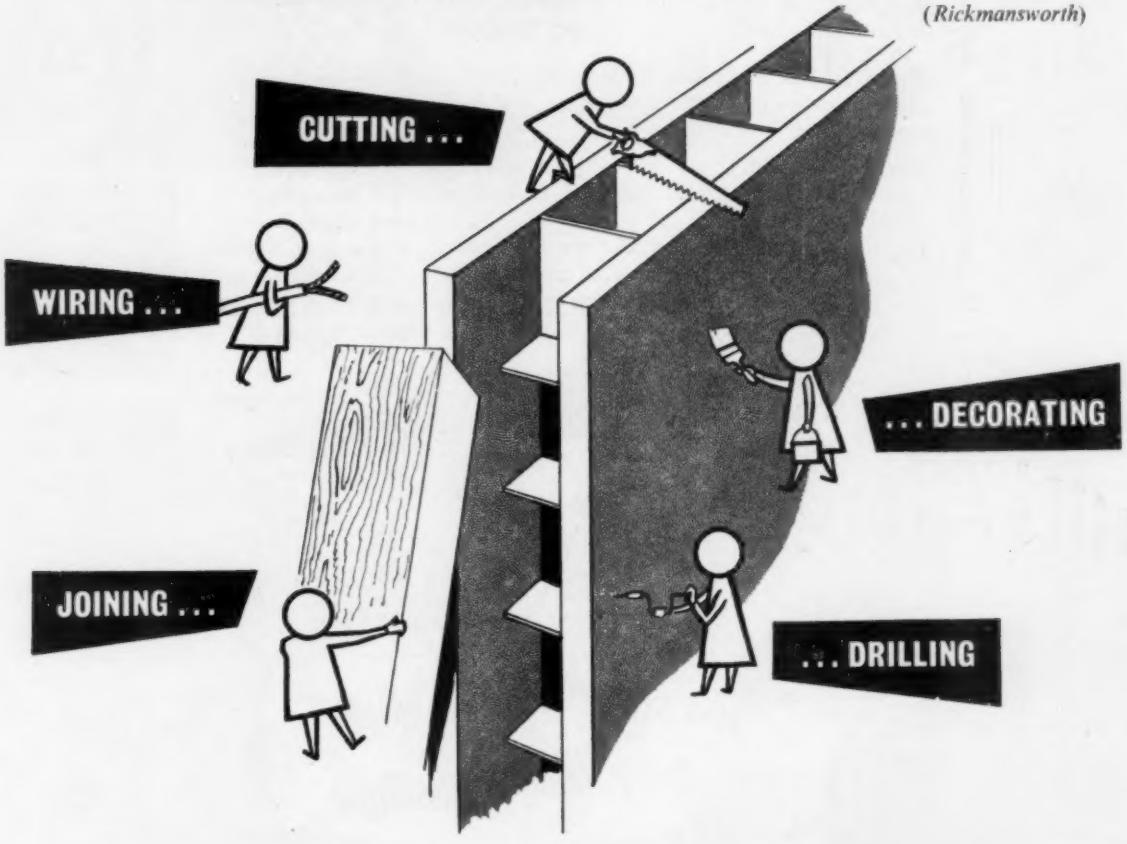

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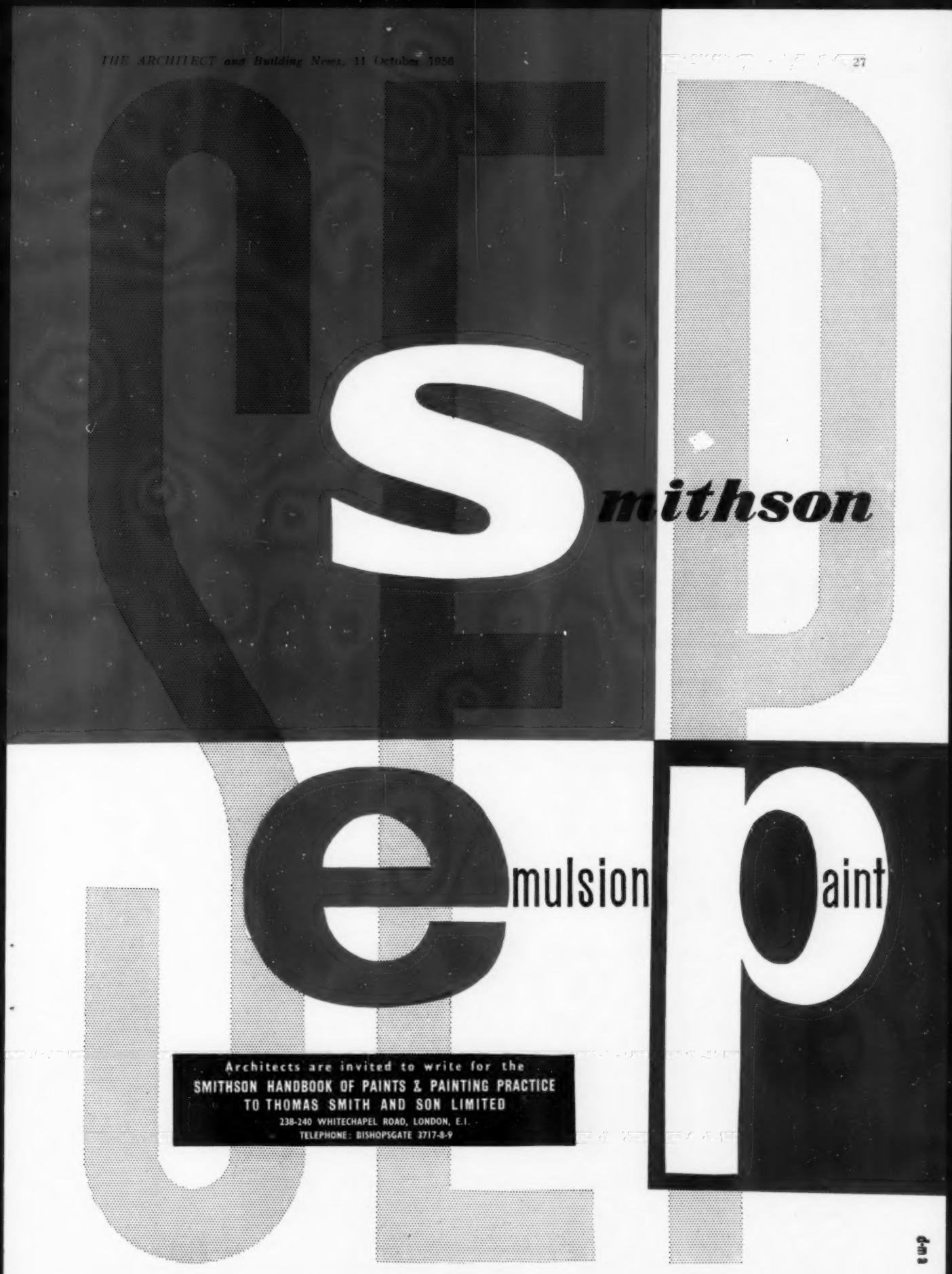
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Vol. 210 No. 15

THE ARCHITECT & BUILDING NEWS

October 11, 1956

The "Architect and Building News" incorporates the "Architect" founded in 1869, and the "Building News," founded in 1854. The annual subscription, Inland and Overseas, is £2 15s. 0d. post paid; U.S.A. and Canada $9.00. Registered as a Newspaper.

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WANTED: THE RIGHT SCHEME

ONCE again private enterprise has received a rap on the knuckles. Five town planning applications from private firms for consent to development schemes of railway land at Victoria Station and Approaches have been refused by the London County Council. One scheme is for a multi-storey garage. Two are for large office buildings over the station and approaches. A fourth is for offices, a hotel and flats. The fifth is for an air terminal, including a helicopter landing ground.

The Council, among their reasons for refusal, consider that the merits of road, rail or monorail connections should be thoroughly examined and decisions arrived at before agreement is reached on the establishment of additional terminal facilities at Victoria; and that a helicopter landing ground over Victoria would need most careful consideration.

They welcome in principle proposals for multi-storey car parks, but consider that permission for the present proposal cannot be given before a decision is reached about an air terminal. Where the applications envisage office blocks with considerable increase of employment in Central London (the major question of the future of the air terminal apart) the Council consider it would be wrong to grant permission having regard to the present congestion in the Central Area and the Victoria district in particular. They note that none of the present applications makes any contribution to the solution of road traffic congestion in the vicinity of Victoria where in addition to the main line terminal, there is the District line, the bus terminus for London routes and the long distance coach station. The Council state that they are by no means opposed to redevelopment of Victoria Station and its approaches, but consider that any development should be on comprehensive lines directed towards easing congestion—not adding to it.

It is stressed by the L.C.C. that they are bound to make decisions on town planning applications within a limited period; nevertheless the present refusals can only be viewed as discouraging, to put it mildly.

The L.C.C. have indicated a policy—comprehensive development—easing congestion—but give little sign of encouraging developers to carry it out. Private enterprise have sponsored unsuccessfully in the past few years a number of large schemes for comprehensive development which have been refused planning permission. How much longer will it be before they lose heart entirely, with so much costly effort going to waste?

And yet have we not the resources to solve London's planning problems? Surely, we have all the information about them in surveys, schedules, reports and documents which have been garnered over the years? Perhaps the greatest need is to reduce traffic congestion and provide adequate shopping centres solely for pedestrians—if only to reduce the daily toll of lives lost on the roads. The London County Council and the Metropolitan Boroughs and the Ministries combined must have all the background information on these two problems amongst others. Private enterprise has given every indication of having both the ideas and the wit to get on with something. Funds are needed to finance any investigation and the solution schemes which are bound to prove costly in themselves. Resources other than public might well play their part here. The spirit which is needed is summed up aptly in the excellent introduction to this year's Nuffield Foundation Report: "Perhaps its (The Nuffield Foundation) methods will be clearer if we think of a foundation as a kind of private bank which finances projects that may yield dividends, not in terms of cash, but of public good. It is a risk-taking bank. It is least interested in secure investments which will produce a modest return. It is out for high dividends and can afford to balance its failures against its successes."

A combined effort would seem the only means of finding solutions to problems London presents. A policy of finding an expediency is more often than not substituted for that of finding a solution. A proper diagnosis is needed; and however unpalatable, the prescribed pill will need to be swallowed in order to effect a cure.

EVENTS AND COMMENTS

UNICEF CHRISTMAS CARDS

It always gives me particular pleasure to mention the United Nations Children's Fund (UNICEF) Christmas cards. Not only because of the good work done by the fund—£81,000 was raised in 1955 from the sale of four and a half million cards—but because the cards are always so well designed. This year there is a charming Steinberg drawing in colour—did you ever see a coloured Steinberg before?—showing the United Nations as a series of bridges linking the continents. There are also five designs by the American artist Joseph Low, in which children's entertainments in various parts of the world are gaily illustrated. Two designs have been given by Jamini Roy of India, and another series of five by Edy Legrand of France is named Holiday Bound. These cards can be obtained with or without printed greetings in five languages and in boxes of 10—two of each design—at the very reasonable price of 7s 6d including envelopes.

This year the Fund is supplying a small leaflet to go with each card explaining the work of UNICEF. Cards and further particulars can be obtained from UNICEF (Department G.C.), 14-15 Stratford Place, London, W.1.

CINEPHONE ON THE RADIO

I hear that "The Midland Critics" will discuss Cinephone (see A. & B.N., 24/5/56) on the B.B.C. Midland Regional Programme on Sunday, October 14, at 7 p.m. The chairman will be Gordon Graham, you may remember his Marley-tile-Award talk on South American Architecture at the AA. H. Werner Rosenthal who designed the Cinephone Cinema referred to above will be taking part in the programme.

BUILT IN U.S.A. I.—THE END OF THE STRUGGLE

The opening on time—after postponement—of this important exhibition at the Building Centre is a minor triumph for the tenacity and hard work of the Centre's staff aided by Mr. and Mrs. H. T. Cadbury Brown. I told only half the story last week believing that all the fuss was over. I was wrong.

The two cases of viewers for coloured slides which "attracted" key industry import duty were delivered with the other cases on Monday morning, but the Centre's electricians could not get at them until Tuesday afternoon because the Customs could not give clearance. From the number of telephone calls to and fro it seemed that "Stereo Viewers" had the B.o.T. guessing. When the Customs officer eventually came to inspect the cases he had with him written instructions to seal them up, but, in what is reported as a spirited conversation with his office made it clear that this was a silly idea.

The exhibition is now open and the B.C. would like to forget the last ten days. It seems to me, however, that something is wrong. The B.o.T. and Customs work to a set of regulations and seem to be allowed little discretion in interpreting them. Had the B.C. known about duty-free import licences and duty-free key industry import licences it is possible that the delay might have been less. We should, however, bear in mind that in the first instance the application for a duty-free import licence was rejected by the B.o.T. largely because it was ignorant of the true function of the Building Centre.

It appears that there is no provision in the import regulations for the easy passage of returnable cultural exhibitions. Surely this should be put right. In conversation with an official of the U.S. Embassy I discovered that the same tortuous rigmarole has to be gone through whenever the Embassy wishes to bring in an exhibition. The import of trade films, however, is so hedged in as to be virtually impossible, and this is borne out by the editor of *Metal Industry*, who, reading of the B.C.'s troubles sent a cutting from his paper telling a fantastic story of two films on aluminium offered free by the Aluminium Company of America for showing in this country. The negotiations dragged on for months and although the films were shown to small audiences in a bonded cinema, they were never released.

Although the B.C. insists that the B.o.T. has at all times been most polite and, within its prescribed limits, most helpful, the whole story seems not only fantastic but appallingly wasteful in time, in energy and, indirectly, in money.

Quite rightly, the B.o.T. does not like adverse publicity. Its officials are hardly to be blamed for sticking to the rules. The rules need changing.

II.—THE EXHIBITION

To start with the exhibition is beautifully and simply mounted. There is a minimum of blurbs and a maximum of illustration—some of the photographs are eight feet square. As it happens the colouring of the Centre's smartly remodelled exhibition hall suits the presentation admirably.

The photographs are supported by fifty-nine of these now notorious "stereo-viewers", each containing a coloured slide. I find them somewhat disappointing. They give a 3D effect certainly, but one does not really see the buildings in the round, but in a series of flat planes. The slides themselves are nothing like the best colour transparencies I have seen.

The buildings will be for the most part familiar to anyone who sees the American architectural papers regularly. There is, as always in exhibitions of this highly selective type, a danger that the uninstructed

layman will think that all present-day building in the U.S. is up to this standard. So carefully have the shots been taken that adjoining buildings, even in the heart of New York, hardly show. Here and there a classical detail has managed to creep into a corner of a picture, and this alone serves to remind us that present-day architecture in the States is not all as good as the exhibition makes it seem.

SOME SIMILARITY AFTER ALL

I met Sir Gordon Russell at the private view of the exhibition. He is off to Canada and the States next week and was having a look round so that he could report on the exhibition to its sponsors, the Museum of Modern Art, in New York.

He told me that, like all wise western travellers to the U.S.S.R., he took on his recent visit a roll of toilet paper, some insect powder and a basin plug. In the first hotel he stayed in the basin had seven holes and his flat rubber plug would only cover three of them. In the second hotel the waste was blocked and his plug was unnecessary. Applying for a U.S. visa recently, Sir Gordon, after being finger-printed in the appropriate department of the Embassy in London, was invited to wash. The basin had no plug.

METAL WINDOWS

Some interesting things were said about metal windows by both architects and manufacturers at the first B.C. Forum held last week. Edward Mills attacked the present standard range, the price ring, and rustproofing, and fittings. Peter Gardener replied with spirit and dealt with the price ring business by contrasting the working conditions in the industry today with thirty years ago and promising everyone a pleasant surprise when the report of the Monopolies Commission on the Metal Window Manufacturers Association is published. Haloes, it appears, will be three a penny. This will be coldish comfort to the architect striving to obtain a competitive tender for standard metal casements from members of the Association. Captain Fox Williams of W. & W., Mr. Attwood, of Crittalls, spoke up loud and often for the member manufacturers and the managing director of Ideal Casements made some points for firms outside. The architects were supported by Mr. A. R. F. Anderson, past president of the AA who complained of damage caused by bad handling of windows on the job. Mr. Mark Modular Hartland Thomas who said that he was sure that before long the manufacturers would have to make a modular range (based on the 4in module, too). Mr. John Eastwick Field and his partner Mr. John Stillman also spoke. In discussion the following emerged. The future of the metal window industry is not in steel or aluminium but in plastics. Zinc spraying and not dip galvanizing are both satisfactory methods of rustproofing but the human element comes on in spraying where it does not in the dip method. Dipped windows can be easily inspected, sprayed windows must be given a protective coat of paint which covers up any deficiencies in the spraying. The cost of changing over to a new set of standards could not be excessive for manufacturers. The vitrious enamelling of window sections has been considered but a satisfactory enamel has not yet been found. And many other points besides.

I thought this a most valuable evening.

NEW AIRPORT BUILDINGS

Vilhelm Lauritzen, famous as the designer of the Copenhagen Radio House, was in London last week. He has been commissioned to design new terminal buildings at Kastrup, Copenhagen's Airport. The existing building is another of his best-known designs.

Arkitekt Lauritzen spent some time inspecting Gibberd's London Airport buildings and found that, although they appeared to work well in some ways, the Customs and Immigration requirements had seriously interfered with the efficient planning of the building. He considers that when 120-seater aircraft are introduced the one "channel" per aircraft system will break down, mainly because insufficient immigration and customs men will be available to deal with the rush of passengers.

Arkitekt Lauritzen told me that because of the constantly altering methods of passenger handling at airports he forsees a huge open building, preferably without intermediate supports. The interior arrangements being easily changeable.

It is hoped that some other use will be found for the existing terminal building at Kastrup.

A model of Yorke Rosenberg and Mardall's scheme for the new buildings at Gatwick is on view in the hall of the Building Centre. More about it next week.

PARLIAMENT SQUARE

Mr. Duncan Sandys has his eye on Parliament Square and its surroundings. In a letter to the L.C.C. the Ministry points out that the Government is very interested in any development which might take place in the area and asks that the Minister should be consulted on any planning application within or adjoining the area bounded by Great George Street, Storey's Gate, Broad Sanctuary and New Palace Yard. I hope this means that Mr. Sandys will have another look at the Colonial Office buildings.

Particular point is given to the letter to the L.C.C. by another letter this time signed by the Minister himself and addressed to Mr. W. E. A. Bull, the president of the R.I.C.S. It appears that the Institution wants to rebuild on Parliament Square. The Minister points out that the Government is considering the future development of the area, and that he has asked the L.C.C. to consult him. Meanwhile Mr. Sandys suggests that "Your institution may feel disposed to defer for the present their plans for rebuilding."

Could it be, oh! could it be that there is yet a chance of a Westminster pedestrian precinct?

ABNER

NEWS

Saltire Society Award, 1955

The Saltire Society which makes Housing Design Awards annually for good design in Scotland has made its 1955 awards equally in favour of two schemes of flats in East Kilbride (F. C. Scott, Chief Architect) and one in Glenrothes (Peter Tinto, Chief Architect). Success of these two authorities repeats their earlier achievements.

Normally the Society gives recognition to houses and flats. The 1955 completions have not given examples of housing which justify an award and for the first time a group of flats has been treated as equal in merit.

Multi-storey Car Parks for the City?

The Common Council of the City of London decided on Thursday last to seek Parliamentary Powers to provide multi-storey and other garages, together with ancilliary facilities in an attempt to offer a realistic solution to traffic congestion in the City's streets. This was done on the recommendation of the committee Court, which concerns itself with the policy of the corporation.

A spokesman of the corporation said there is a strong desire among individual committee members to provide multi-storey garages built either for the corporation or as lettable buildings operated by commercial concerns. However, until the matter was put forward as a concrete suggestion by the appropriate committee, detailed proposals could not be investigated. It is probable that the committee will report more fully in two or three months' time.

Any special authority for the erection of such buildings could be embraced by the City of London Various Powers Act. Until the report is made public it is difficult to know on what lines—construction, car handling, equipment—the buildings might be planned.

Law and Administration

Clean Air

The Clean Air Act, 1956, lays many burdens upon local authorities particularly in regard to the control of domestic smoke. They are given power to create what are called "Smoke Control Zones" but the institution and management of these zones is likely to raise many problems. The supply of suitable equipment, the price and availability of smokeless fuels, the cost of changing domestic installations are all matters which, though by no means insuperable, present considerable difficulties. In controlling smoke emission from industrial undertakings there are another group of difficulties to be found. The way in which these problems are met will exercise a marked influence upon the way in which the powers of the Act are operated and in some cases will decide if they are to be operated at all. Those local authorities and others who are concerned to make the new Act work will find much of value and interest to them in the papers presented last week to the *Southport Conference* held by the National Smoke Abatement Society.

In particular, Mr. D. P. Welman, of the North Western Gas Board, gave some advance details of "Thermalite" which is a smokeless solid fuel. He claimed that this fuel is now in full stage production and the Gas Board hopes it may be available in quantity during this winter. He added that:

"It should be remembered that there are probably up to ten million houses in the country as a whole which still have a considerable number of years of useful life before them, but which are unlikely for a variety of reasons to be provided at any time in the future with special coke burning appliances. For such houses 'Thermalite' provides an immediate answer without capital outlay on the part of the householder".

Mr. Welman said that the new fuel was clean, easily ignited and easy burning on an open fire. If the claims made for this fuel are correct then the gas industry will have made a handsome contribution to making the new Act really effective in the course of time.

Compulsory Purchase Postscript

It may be recalled [see A. & B. N., 4:10:56] that a complaint was recently made by Lt.-Col. Filkins to the Ministry of Housing and Local Government. He stated that Brighton Corporation had acquired 33 acres of his land for *council housing*. They subsequently resold, for private housing two-thirds of that site, on the terms already reported. Lt.-Col. Filkins applied for permission to build 86 houses on his land claiming that so much of his farm land had been taken from him for building that it was impracticable for him to continue to farm the site in question. The Minister had now dismissed his appeal against the refusal of Brighton Corporation to allow the development, saying that the development would be an undesirable intrusion into open land. The Minister, who hates jargon states that the development would have *"consequent detriment to local amenity"*. Doubtless, there is more to this unusual sequence of events than meets the eye but, upon the face of it, it scarcely seems likely to increase public confidence in the integrity of the administration.

Coming Events

Building Trades Exhibition

October 16-27. The Twenty-first Building Trades Exhibition will be held at the City Hall, Manchester.

The Building Centre

October 17 at 12.45. Lunchtime film show. "The Sliding Door" by E. Hill Aldam & Co. Ltd., at 26 Store Street, W.1.

The Institute of Clerks of Works of Great Britain

October 17 at 6.30 p.m. A lecture on "Reconstructed Stone and Cast Concrete", by T. B. Smith, A.M.I.C.E. Guest chairman: Ronald Ward, F.R.I.B.A. At the RIBA, 66 Portland Place, W.1.

The Royal Institution of Chartered Surveyors

October 17 at 6 p.m. General meeting. Address on "Organization and Planning for Large Building Contracts", by L. J. Holloway, M.I.O.B., at 12 Great George Street, S.W.1.

Victoria and Albert Museum

October 17 at 6.15 p.m. "The Baroque Staircase", by Professor Sir Anthony Blunt, Director of the Courtauld Institute. At South Kensington, S.W.7.

Leeds School of Architecture and Town Planning

October 18 at 7 p.m. W.Y.S.A. Presidential Address, by N. H. Fowler, F.R.I.B.A., and "Criticism of Prize Drawings", by W. T. C. Walker, R.S., A.R.I.B.A. At 43A Woodhouse Lane, Leeds, 2.

Royal Festival Hall Completion Scheme

AT their meeting on Tuesday the London County Council considered a scheme for the completion of the existing Royal Festival Hall, for which an estimate of £35,000 for preliminary expenses was recommended by the General Purposes Committee for approval. The Committee consider it desirable to undertake also further study of the design and cost of the proposed new small hall to be erected between the Royal Festival Hall and Waterloo Bridge.

Royal Festival Hall

It is proposed to extend the unfinished end of the building by 30ft to provide the required back-stage and administrative accommodation and improved access and other arrangements. The principal public entrance will be removed to the new Belvedere Road front, a separate artists' entrance and lift will be provided to the left of the public entrance, and an enlarged box-office and administrative offices, with a small lift affording controlled access to all parts of the building, to the right. Extension of the dance floor and foyers, provision of separate cloakrooms and lavatories, and replanning of the staircases at the lower levels, will enable the public for different functions to be segregated at ground level, and thus permit independent use of the dance floor while a concert is in progress. The present multi-purpose goods and artists' lift will be made available as a public lift at one side of the new entrance, and a second public lift will be provided on the other. These two 60-passenger lifts will provide direct access from ground level, without the necessity of entering the dance floor area, to the auditorium, the meeting room (at present used for small concerts and recitals), and an enlarged and replanned exhibition suite with bar facilities; and independent lettings of the various parts of the building will be facilitated. At the higher levels, the main bars on either side of the auditorium will be enlarged and adequate accommodation provided for artists, wardrobe and stewards.

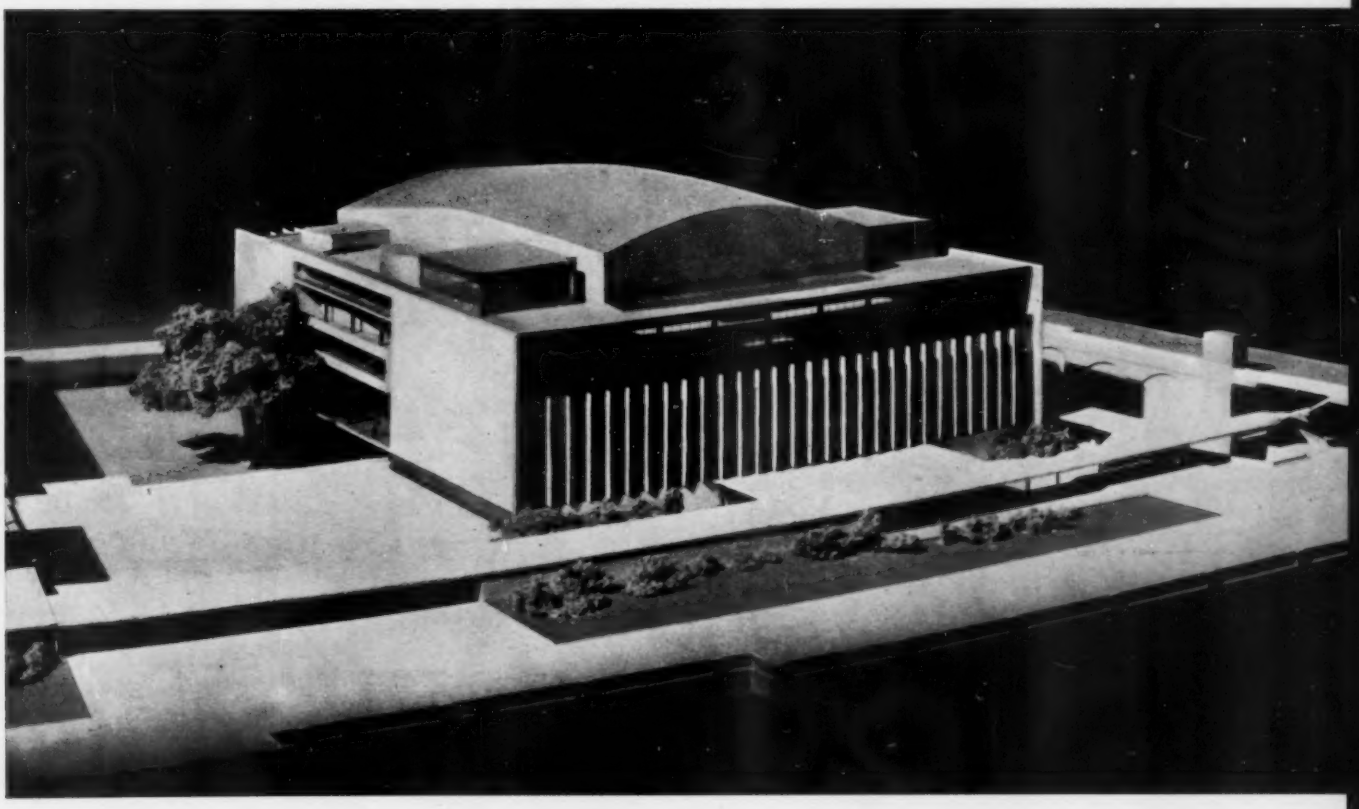
It is also proposed to double the capacity of the restaurant on the river front by extending the building 20ft forwards and by filling in the well at the upper restaurant level. This enlargement of the seating accommodation, together with an extension and replanning of the area of preparation for *à la carte* meals, will make it possible to serve an increased public, to offer more varied meals, and to secure a greater use of the restaurant for day-time functions.

At present prices the inclusive cost of completing the existing Royal Festival Hall (excluding the cost of adapting the terrace and of the outside works that will eventually be necessary between the present building and the small concert hall) is estimated as follows: Completion of Belvedere Road end, £615,700; Extension of restaurant, £175,600; Furnishing and equipment, £54,450; total, £845,750.

Proposed Small Hall

The seating capacity of the auditorium would ordinarily be about 1,100 though capable of reduction to a smaller figure, and the stage also capable of reduction by

River front of new scheme.

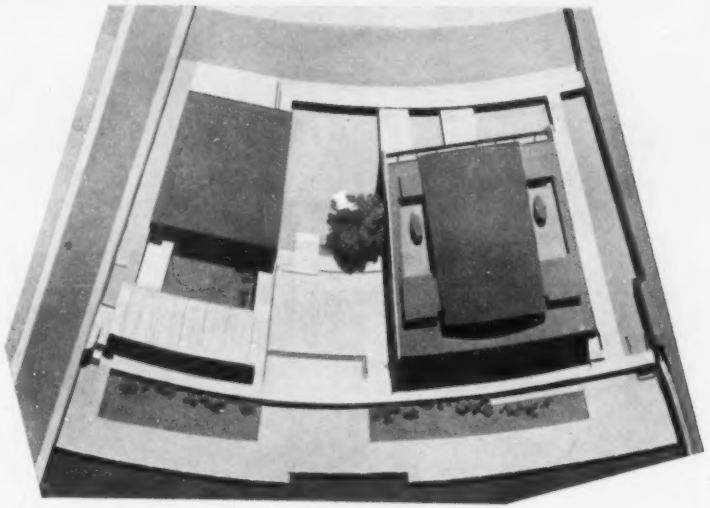


Royal Festival Hall Completion

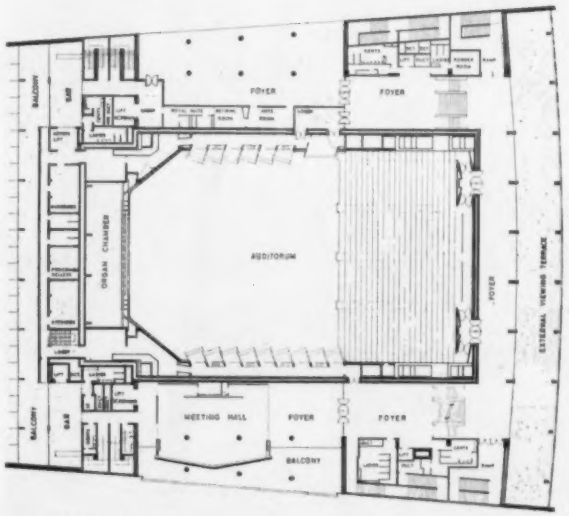
screening, would reproduce the orchestra platform in the Royal Festival Hall and thus be suitable for orchestral rehearsals. There would also be an exhibition gallery and other associated accommodation suitable for letting.

South Bank Pedestrian Circulation

Overhead pedestrian circulation will link all the new buildings on the South Bank. This will involve an extension of the terrace in front of the Royal Festival Hall to form a continuous link between Waterloo and Hungerford Bridges, and parts of the work would have to be carried out in association with that of completing the Royal Festival Hall. Extension of the terrace as proposed has been approved in principle subject to the submission of a detailed scheme and estimates.



Site Plan Showing Small Hall.



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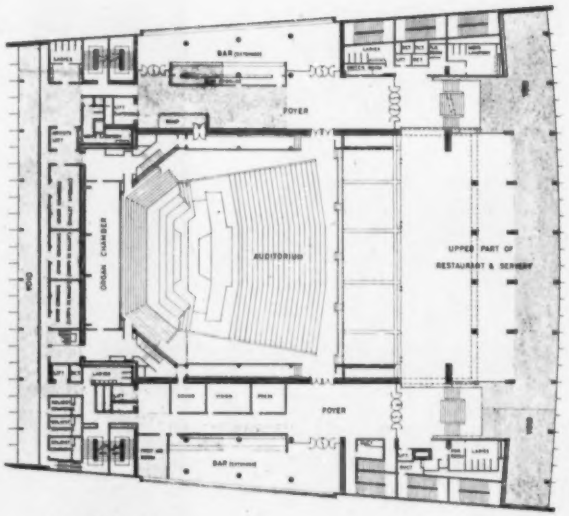

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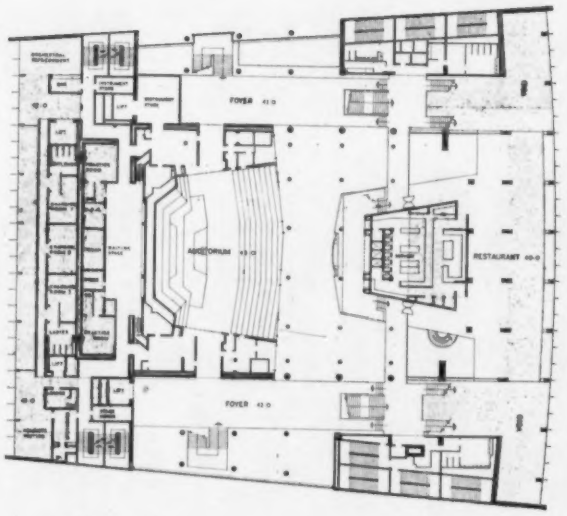

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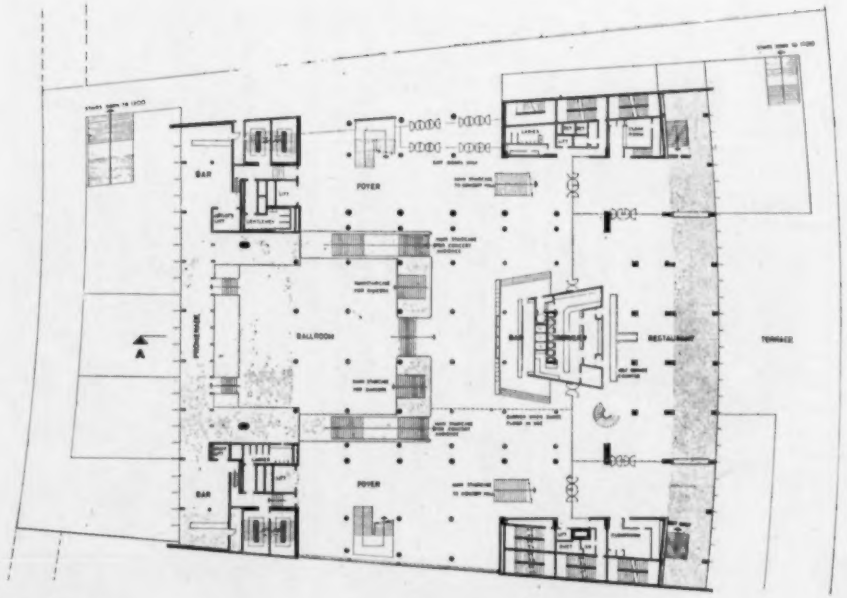

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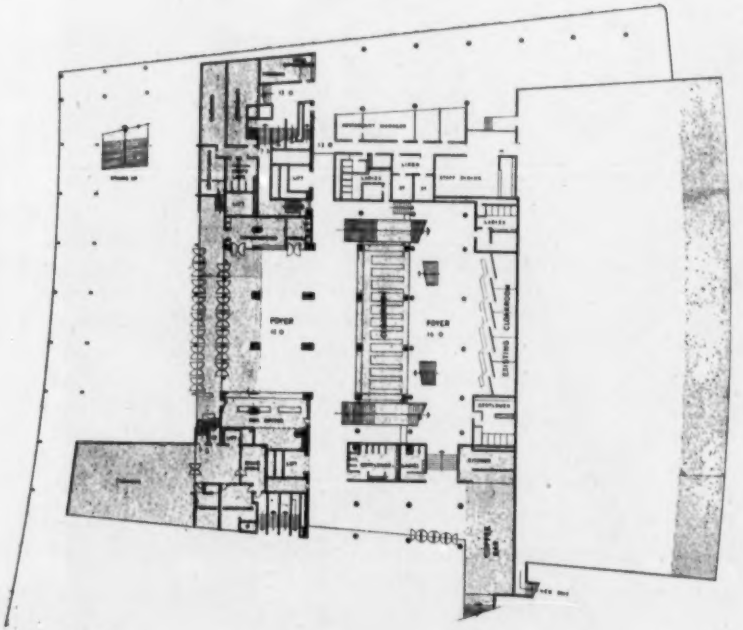
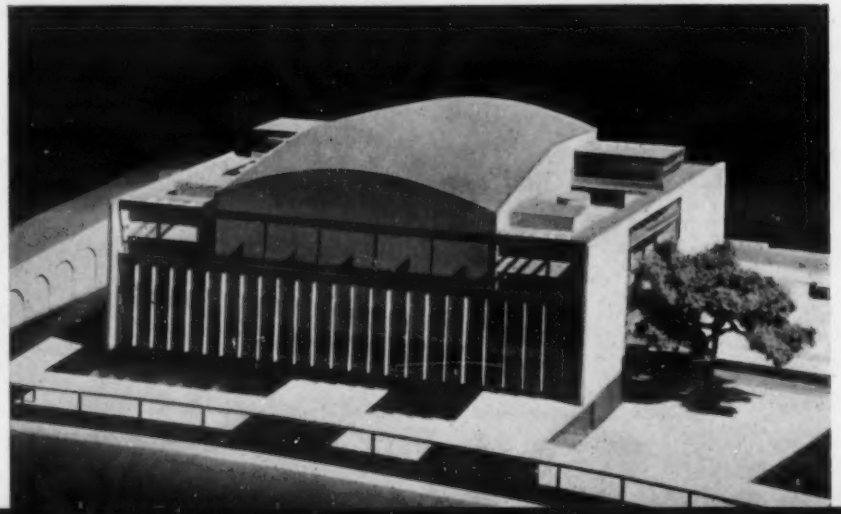
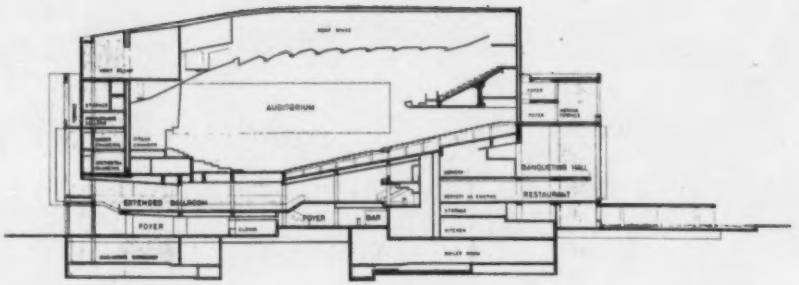


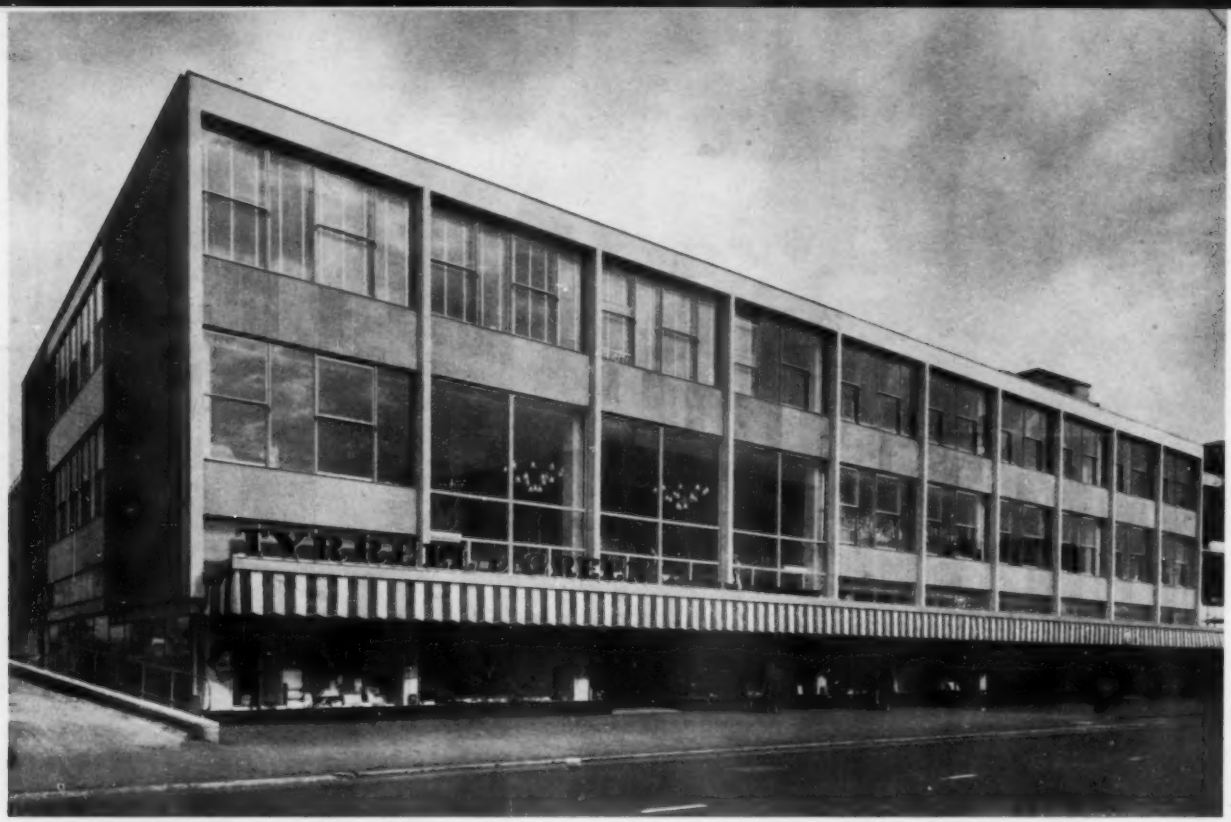
LEVEL 12

Royal Festival Hall, Belvedere Road front.





LONG SECTION A-A



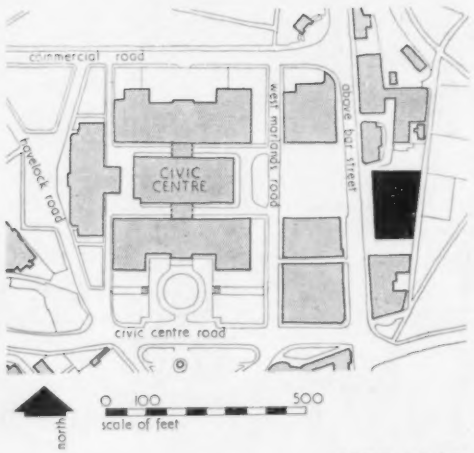
Above Bar Street elevation

STORE

for Tyrrell & Green

SOUTHAMPTON

architects :
YORKE, ROSENBERG & MARDALL
associate architect : J. R. Penoyre
architect in charge : J. S. Snell



SITE PLAN

THE new building occupies an important site on Above Bar Street, and will form part of the East Side of the New Guildhall Square which is to be created in front of the Civic Centre. The site area is 17,500 sq. ft; frontage, 175ft; total floor area, 70,000sq. ft.

Construction was completed in two stages, the first on that part of the site not occupied by a Temporary Store, which had to remain open until completion of Stage 1, the second entailed the demolition of the Temporary Store and the completion of the new building. Stage 1 was started in mid-May, 1954, completed at the end of May, 1955, and opened to the public in early June, 1955. Stage 2 started at the end of May, 1955, completed at the end of May, 1956 and opened to the public on May 7, 1956. Provisions have been made to extend the second floor over the terrace on the East Park side and to extend upwards one more floor over the whole site.

Planning

The building contains basement, ground, 1st and 2nd floors, and all have sales area. These areas are connected by a spiral chute to the receiving and despatch department in the basement. All goods are received and despatched from the basement which is connected by lifts and chute to a delivery bay at ground floor level on East Park side. The store contains two

passenger lifts, one goods lift, and provision has been made for another goods lift. An escalator runs from ground to first floor level and an extension of this to the second floor has been allowed for. Mechanical plant is placed in the basement and in penthouse buildings on the roof. The whole of the services including the lifts and mechanical plant are concentrated in the South East corner of the building, together with the receiving and despatch of goods. The remainder of each floor is thus left clear for Sales Areas, stock storage, public restaurant, ladies hairdressing, etc., as shown on the plans, pp. 486 and 487.

There are three staircases. The first has open risers, is 6ft wide and runs from the ground floor to the basement sales area. The open stairwell allows views of the basement from the ground floor. The construction consists of boxed steel strings with teak treads suspended from the underside. The second staircase is the main one to the sales area of each floor on the North side of the building and serves also as a means-of-escape. This stair is in terrazzo with precast terrazzo slab treads. Balusters to both these stairs are simple vertical, tubular drawn steel members; alternate members having stainless steel sleeves. The handrails are Teak. The third staircase is for staff access direct to the sales areas canteens, toilets, etc. It is finished in Grano, with quarry tiles on landings, and simple mild steel balusters and handrail.

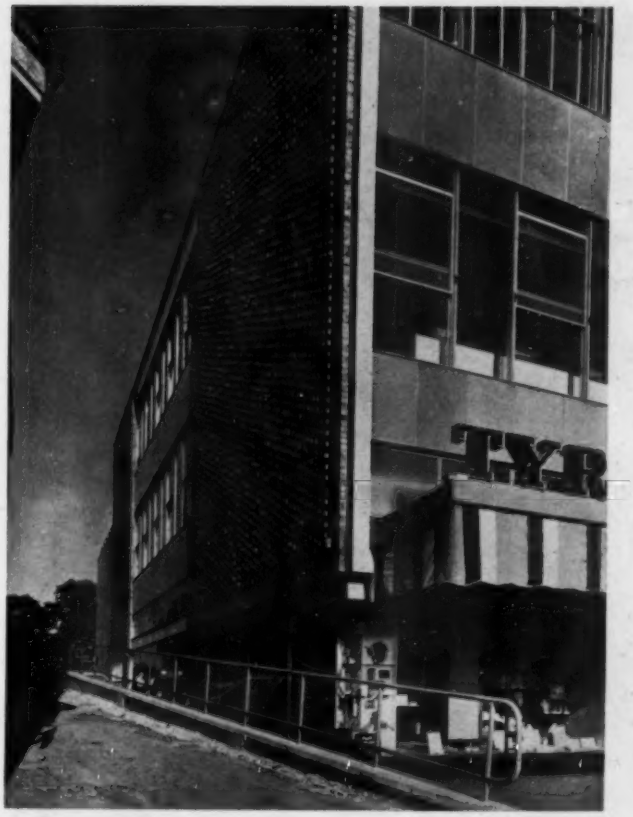
Elevations

The main windows on all elevations on the upper floors are aluminium, vertically hung sliding sashes in steel frames with a carefully worked out system of wires and weights arranged so that the breaking of a wire will not cause the sudden closing of a sash.

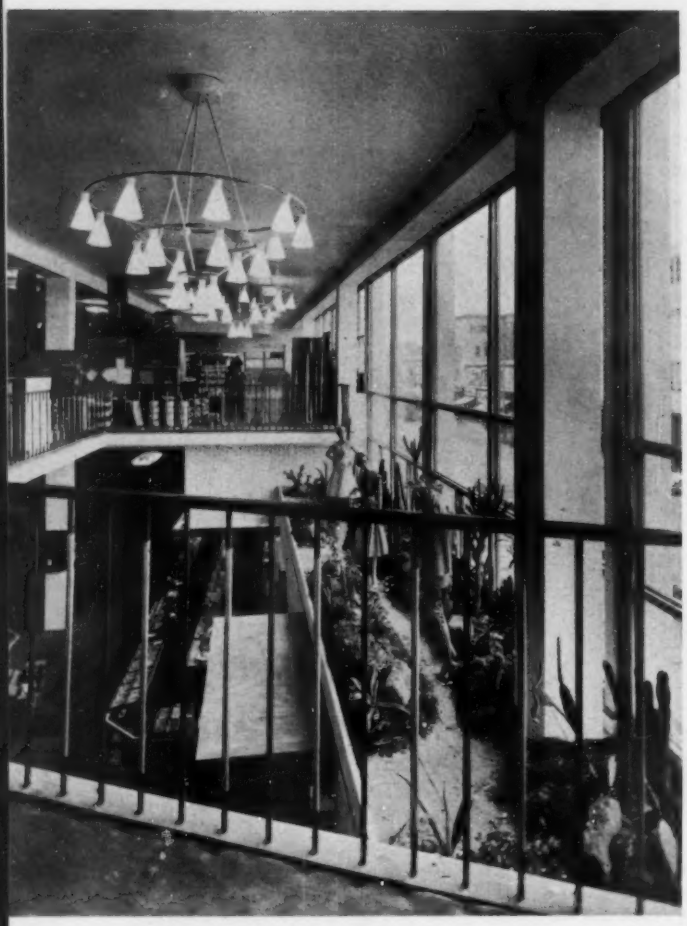
The Above Bar Street frontage has Portland Stone mullions and cornices, with Westmorland slate slabs between windows. On the East Park side the building has Portland Stone mullions and cornices; exposed aggregate concrete slabs and tiling at street level. The elevation at the terrace level is regarded as temporary, as future construction on the terrace will mean carrying the stone mullions and exposed aggregate concrete slabs up one more floor on this elevation. On the third side, Prospect Place, panels are of patterned brickwork and exposed aggregate concrete slabs. Most of this elevation is a party wall, but the adjoining building is not likely to be rebuilt for another 15/20 years.

Other Items

All the shop fitting and interior work, including lighting and decoration was designed by the Clients own specialists. Heating is by means of embedded ceiling panels ("Panelite"); and radiators in some rooms of minor importance. There is complete air conditioning in the basement, kitchen and various other areas. Extract ventilation is used in the Restaurant, Hairdressing and elsewhere. An Automatic Fire Alarm System is installed and connected direct to the Fire Station.



North elevation (above) is detailed on page 488. Sidewalk canopy (below) is detailed on page 489. On the other side of Above Bar Street are some of the temporary shops built since the war. Many of them will be removed to make way for an open space between the East Park and the Civic Centre.



First floor gallery.

Stairs, basement to ground floor.

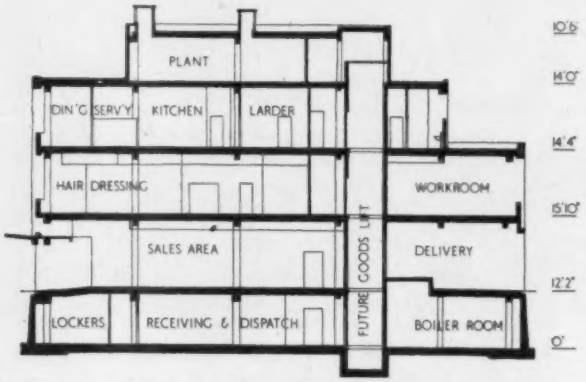
Tyrrell and Green Store

architects :
YORKE, ROSENBERG & MARDALL

quantity surveyors :
RIDER HUNT & PARTNERS

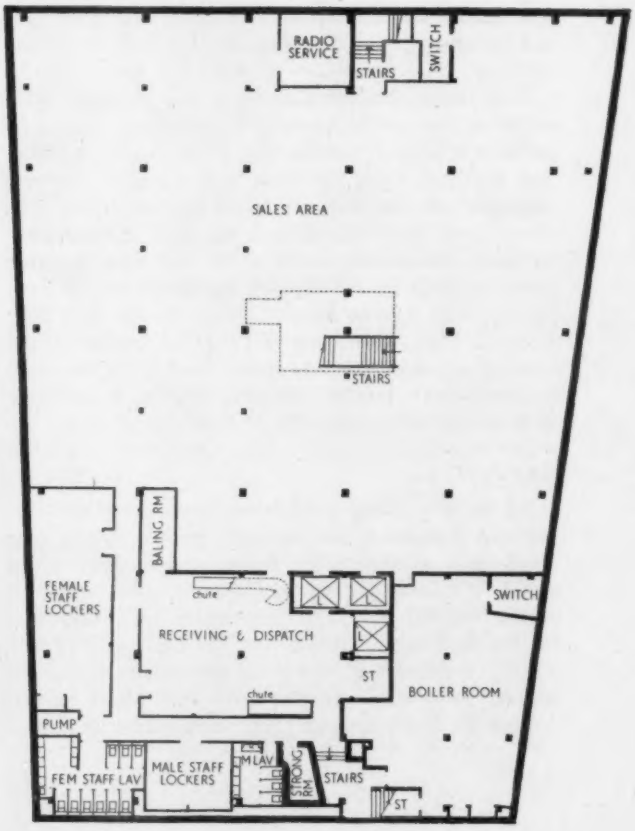
consultant structural engineers :
CLARKE, NICHOLLS & MARCEL

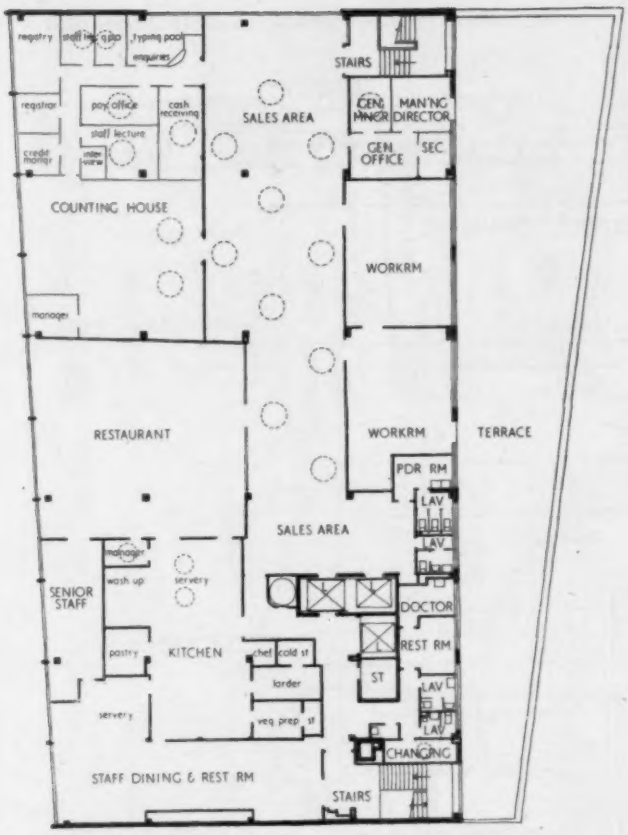
consulting engineers (heating, ventilating and electrical) :
Directorate of Building, JOHN LEWIS CO. LTD.



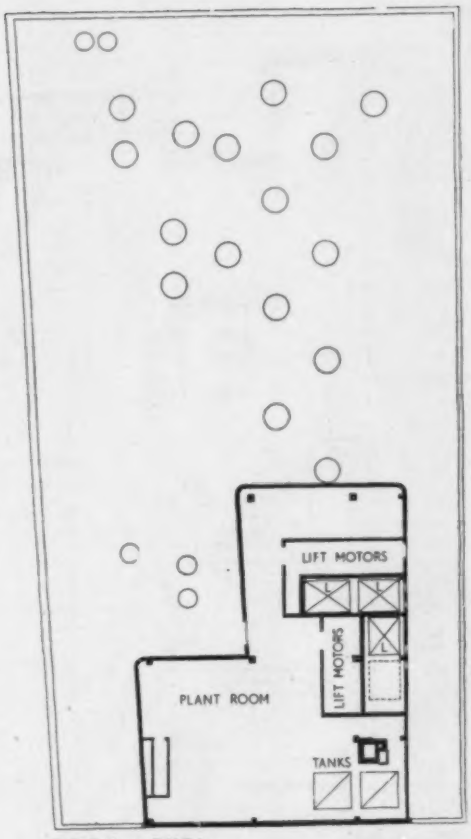
CROSS SECTION TAKEN THROUGH LIFTS

BASEMENT PLAN



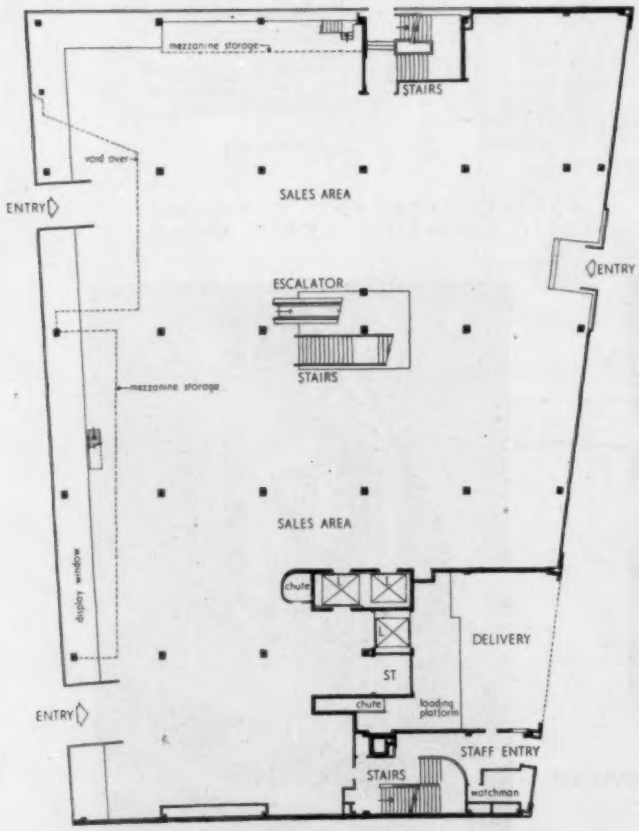


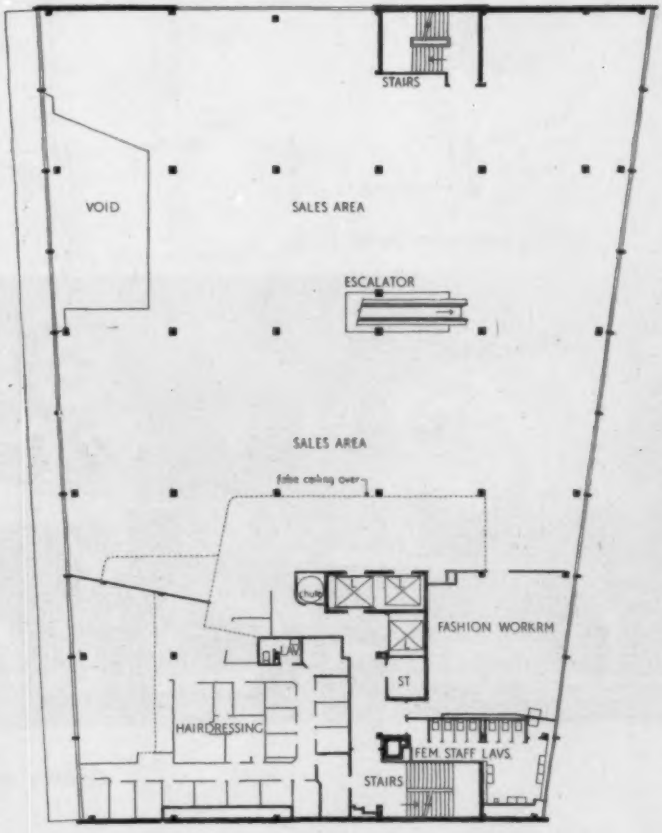
SECOND FLOOR

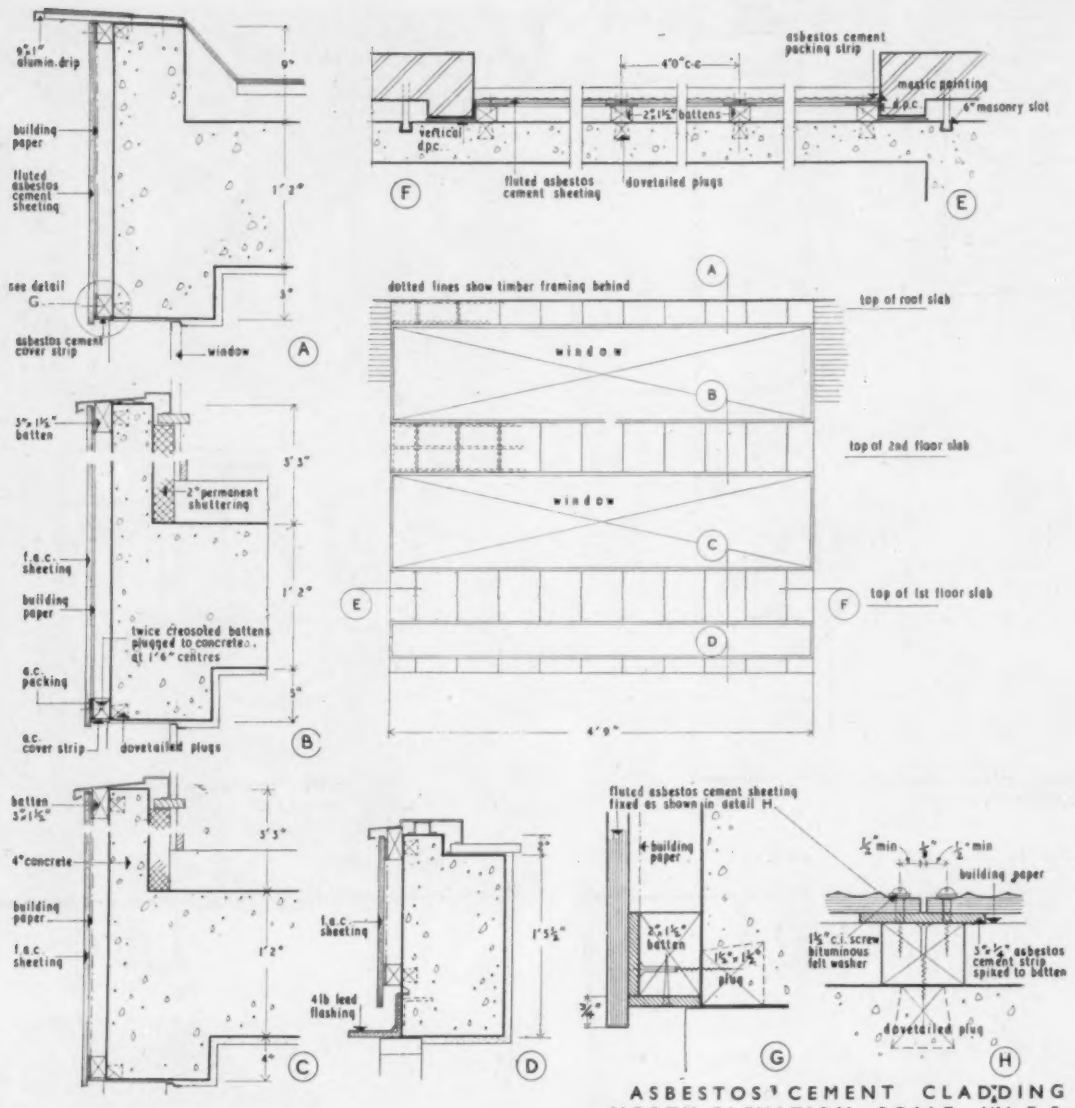


ROOF LEVEL

GROUND FLOOR SCALE: 1 IN = 36 FT FIRST FLOOR

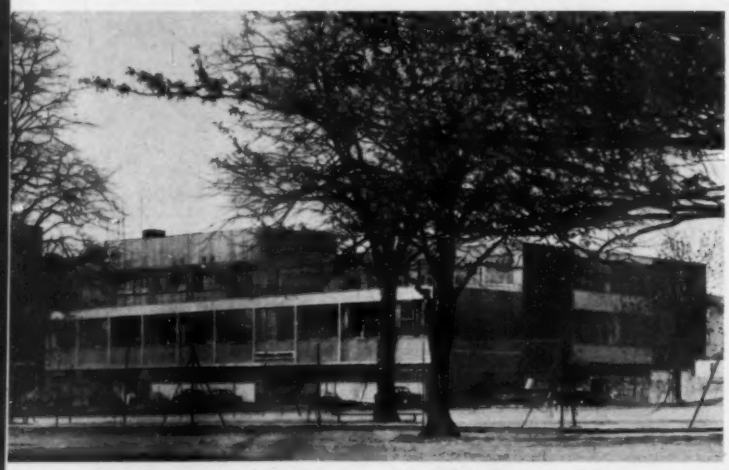


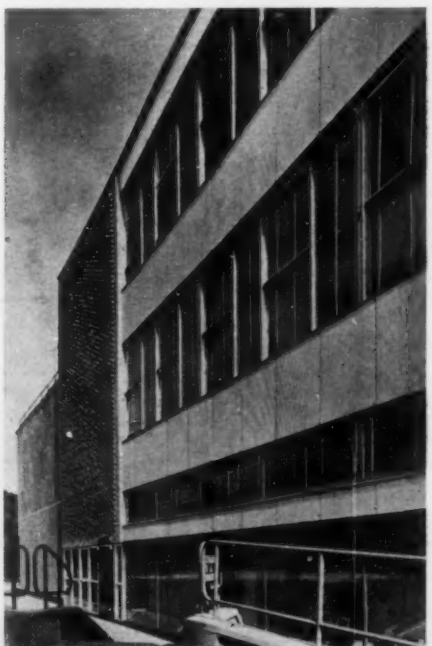




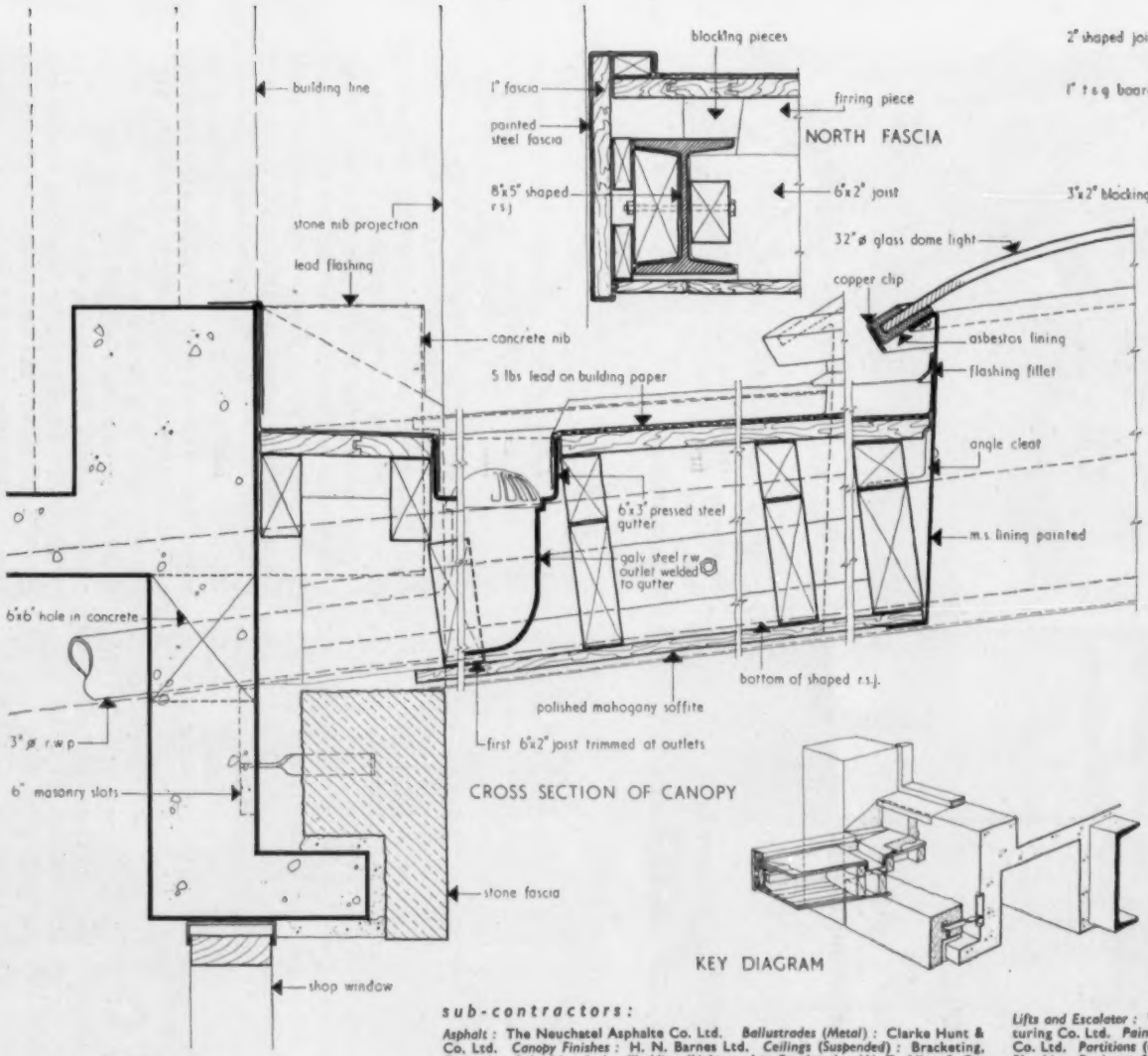
ASBESTOS CEMENT CLADDING
NORTH ELEVATION. SCALE: 1/16 F.S.

Looking west across park.





Cladding on north side.

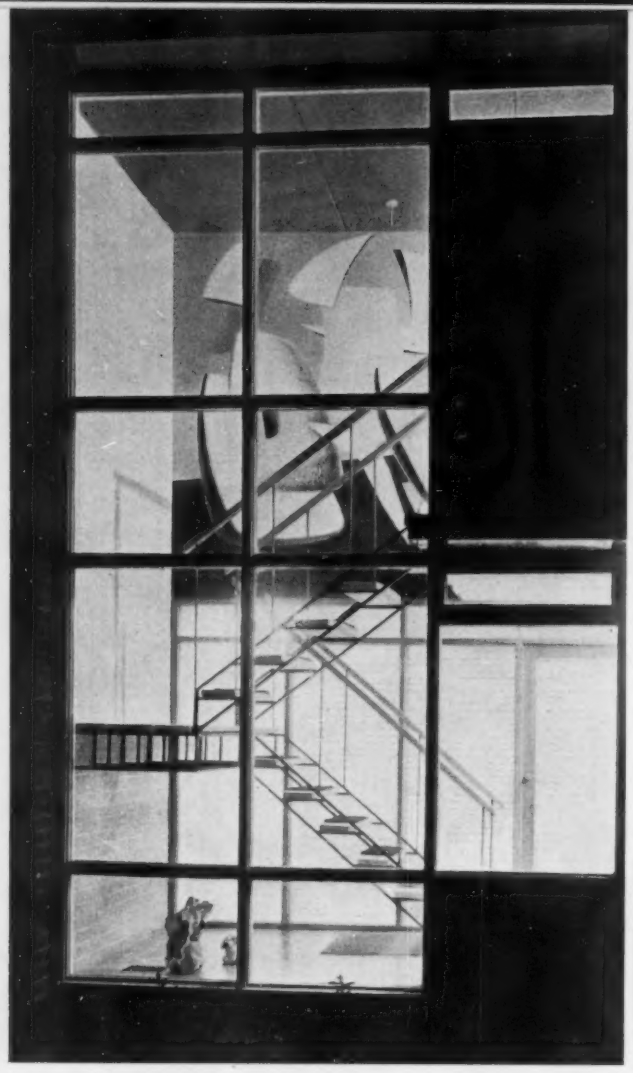


Tyrrell & Green Store

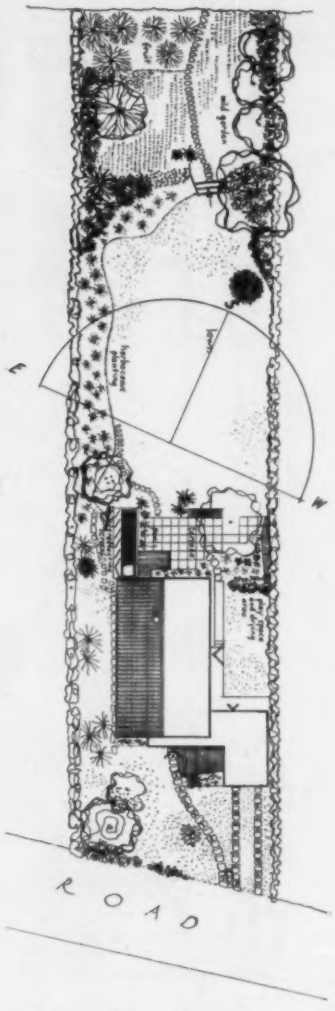
general contractor: Richard Costain Ltd.

sub-contractors:

Asphalt: The Neuchatel Asphalte Co. Ltd. *Ballustrades (Metal):* Clarke Hunt & Co. Ltd. *Canopy Finishes:* H. N. Barnes Ltd. *Ceilings (Suspended):* Bracketing, Centering & Lathing Ltd. *Cladding (Light steel to Escalator):* W. T. Allen & Co. Ltd. *Demolition:* Henry Osman & Co. Ltd. *Display Windows:* H. N. Barnes Ltd. *Dome Lights:* T. & W. Ide Ltd. *Doors:* F. Hills & Sons Ltd. *Electrical Installation:* F. H. Wheeler (Southern) Ltd. *Fire Alarm System:* Associated Fire Alarms Ltd. *Flooring (Rubber):* Cellulin Flooring Co. Ltd. *Floors (Wood Strip):* The Acme Flooring & Paving Co. (1904) Ltd., R. W. Brooke & Co. Ltd. *Glazing:* E. A. Hetherington Ltd. *Heating, Hot Water Supply & Ventilation:* Arthur Scull & Son Ltd. *Hairdressing Department:* Henry Serventi Ltd. *Ironmongery:* Alfred G. Roberts Ltd. *Joinery:* Golding & Ansell. *Kitchen Equipment:* Benham & Sons Ltd. *Lifts and Escalator:* Waygood-Otis Ltd. *Matting (Rubber Link):* Nuway Manufacturing Co. Ltd. *Painting:* Arnold Sharrocks Ltd. *Paint:* Leyland Paint & Varnish Co. Ltd. *Partitions (Office):* Compactom Ltd. *Piling:* The Cementation Co. Ltd. *Plumbing, Drainage & Cold Water Supply:* Richard J. Audrey Ltd. *Roofing:* Wm. Briggs & Sons. *Sanitary Fittings:* Shanks & Co. Ltd., Stitsons Sanitary Fittings Ltd. *Shutter (Rolling):* Haskins. *Signs (Illuminated):* Signscrafts Ltd. *Slabbing (Concrete):* Costain Concrete Co. Ltd. *Slate:* Setchell & Sons Ltd. *Spiral Chute:* Sovex Ltd. *Staircases:* Clarke, Hunt & Co. Ltd. *Steelwork (Structural):* Power's & Deane Ransome's Ltd. *Stone:* The Bath & Portland Stone Firms Ltd. *Strongroom Door:* Chubb & Sons Lock & Safe Co. Ltd. *Terrazzo:* Diespeker & Co. Ltd. *Telephone Booths:* Burgess Products Co. Ltd. *Tiling:* Wiggins-Sankey Ltd. *Windows (Metal):* Williams & Williams Ltd.



Solar House at RICKMANSWORTH



Mural and staircase by night ; both by Cecil Stephenson.

architect : EDWARD J. W. CURTIS

AN elevated and sloping site, overlooking the Colne River valley at Rickmansworth, was chosen for this house in order to take full advantage of the South aspect for using Solar radiation experimentally. The house shows that the narrow fronted plot can be well exploited, bearing in mind that the majority of house owners require ease of access for transport, shopping facilities, schools, etc.

Permission to build was refused by the Chorleywood U.D.C. on the grounds of incompatability with surrounding property. Rickmansworth U.D.C. also opposed the project on the grounds that it would make similar designs possible in their area. After a public inquiry approval was given by the Minister of Housing.

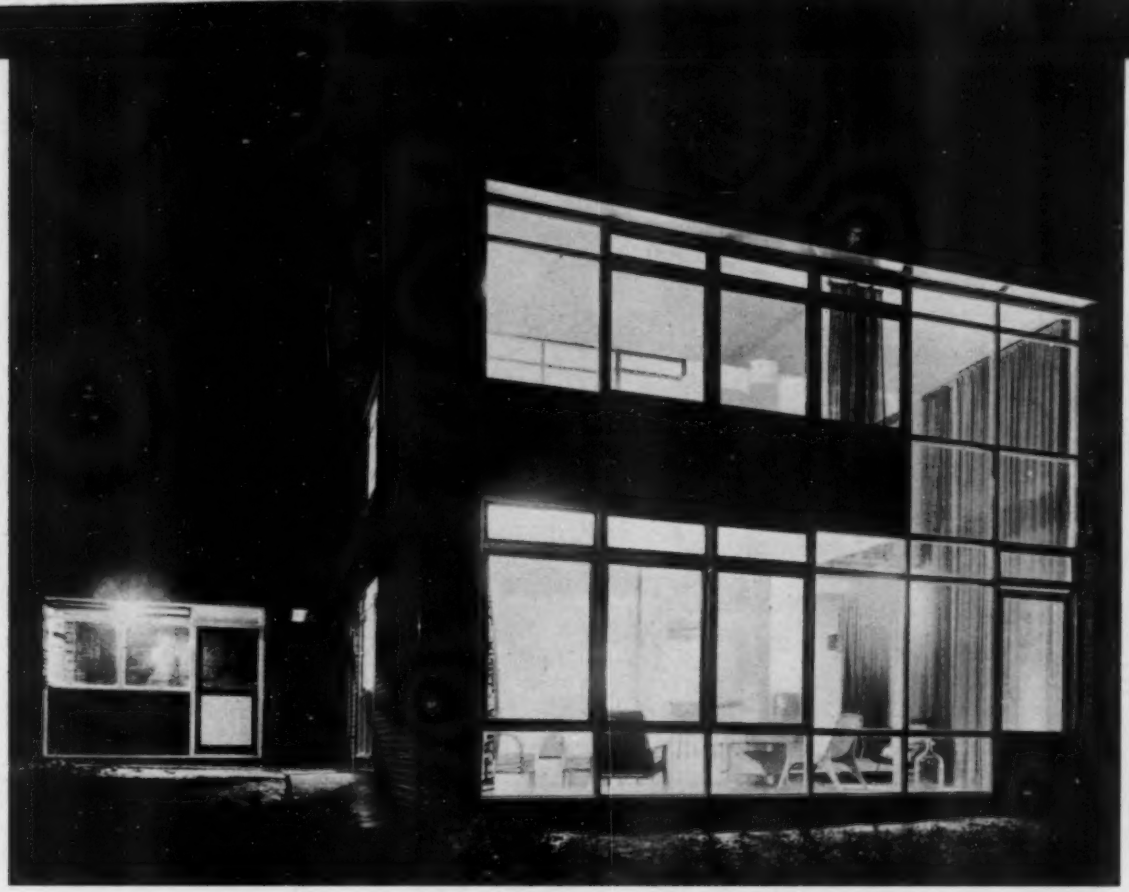
Environment

The lower level of the house (except for entrance hall and cloakroom) is virtually one space, subdivided only by a kitchen fitment and partitions 6ft 6in in height between kitchen-play area and dining-living area. A shaped top swivelling on tubular steel column acts as a "door" for service and access to and from the kitchen.

The internal sense of space is increased by placing the sitting area on a lower level and opening part of it through the first floor. The main bedroom becomes a balcony overlooking the living room; a glass wall to the second bedroom also overlooks the void. The ceiling heights are dining, kitchen, hall, etc. 7ft 6in; sitting area 8ft 6in and void 16ft 9in.

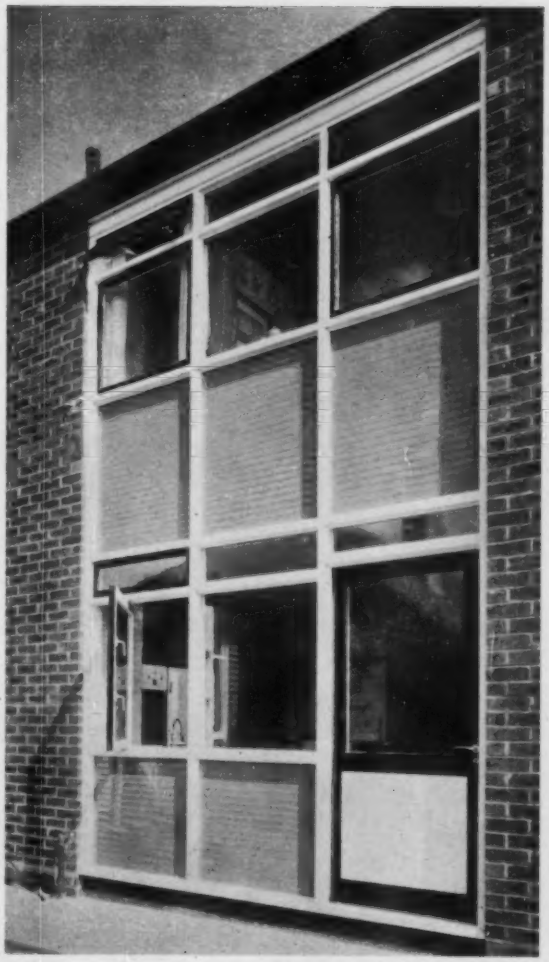
A free standing fire, for psychological reasons, forms a focal point at the change in floor levels. It has a circular concrete stack, coloured citron yellow which can be seen both indoors and from out as it penetrates through the balcony bedroom to the roof. The stack weighs 1½ tons, is carried on a reinforced slab cantilevered from a curved concrete wall, is textured on top with large coloured beach pebbles, ammonities, etc., and terminates in a circular water channel. Fire tray incorporating under floor draught and hood with throat controls are both in polished steel.

Light is distributed internally from three window wall panels (one at each end and a side panel). It was found possible, after tests on a model, to eliminate all other windows except for two small ones in bedrooms.



Main south elevation overlooking Colne Valley ; in rain at night.

Side window wall panel with door to play space and kitchen. ▶



Mobile Colour Scheme

The inner skin of the side walls (white-grey facing bricks) and the double glazed south window wall are integrated with a mobile colour scheme produced by curtaining which is hung on double white nylon tracks. The curtains return on the side walls at both floor levels, so that a giant abstract pattern is formed capable of infinite variations when used in conjunction with semi-transparent curtains for sun diffusion which are hung on a second track. Curtains used are: Persimmon to double height void; Black Windsor to balcony bedroom; an abstract, Raw Coral, in white, Persimmon and black to sitting area; yellow and black Texturenet on second track. Curtains were chosen in collaboration with Mr. Tibor Reich.

The window wall externally is painted white with black opening lights and yellow Vitroslab spandrel panel, which reads with curtains to form an exterior colour pattern. Accoflex flooring tiles—black to living area and grey-white elsewhere—have been selected in relation to the colour-light process described above.

Flexibility is obtained on the ground level by removable partition to play area and curtains (Stratford Purple) between living and dining areas which are used also in conjunction with the main curtaining scheme,

Entrance elevation ; heat exchanger on garage roof and incised line abstract by the architect.

consulting engineer :
S. A. BRADBURY

general contractor :
J. E. AMBRIDGE & SONS LTD.

sub-contractors :

Blinds :
J. Avery & Co. Ltd.

Ceilings :
Celotex Limited.

Curtain Track :
Swish Products Ltd.

Curtain Material :
Tibor Reich

Double Glazing Units :
Plyglass Ltd.

Electric Fittings :
Simplex Electric Co. Ltd.

Flooring "Accoflex."
Armstrong Cork Co. Ltd.

Heat Pump & Air Conditioning :
Denco-Miller Ltd.

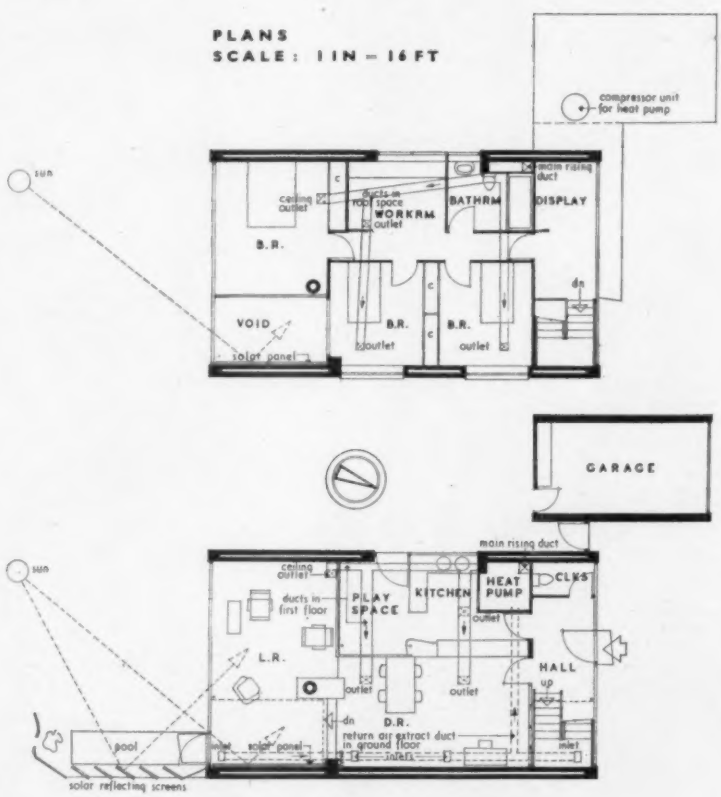
Insulation :
Alfol Insulation Ltd.

Light Fittings :
Coombe Products.

Paint :
Permoglaze Ltd.

Partitioning :
The British Plaster Board (Manufacturing) Ltd.

PLANS
SCALE : 1 IN = 16 FT



House at Rickmansworth

already described. Entrance hall, cloakroom and landing, to North and facing the road provide, in conjunction with the double glazed window wall, a barrier at the "cold" end of the plan. The double glazed Plyglass screen, between dining and hall, with diffusing slats of glass fibre, cuts off the view in from the road; the slats pick up the outline of the staircase and create moving shadow patterns on floor and walls, as the sun moves round to West.

The staircase has a light welded steel framework carrying shaped treads in natural beech with Royal Blue Axminster insets. The balustrading is ½in diameter polished steel rods and the handrail is in natural beech. An abstract mural (10ft 6in by 7ft 6in) on the inner staircase wall is a spatial design seen externally; it contrasts with the mechanical structure, and picks up staircase and wall colours. The mural was executed by Cecil Stephenson, who also constructed the staircase.

Upper Level

Flexibility has been aimed at on the first floor by the following arrangement: the display space at the landing end, lit by high level lights in the window wall, will normally be used for the display of pictures and sculpture by artist friends. It is possible to curtain off this area for use as a sleeping space.

Access to the balcony bedroom provides studio space which can also be used for temporary sleeping. The two small bedrooms are divided by removable storage fitments, so that a single, or partly divided space, can be formed. Later, a room can be added over the garage with access through the display space. The bathroom, which is seen as a dark blue free standing cube from landing and studio, incorporates a hot air linen drying or airing cupboard fed from the heat pump rising hot air duct.

All trims to floors, door frames, plinths, framing to cupboard fitments, etc., are finished matt black and all doors, fitments and screens, etc., are in natural mahogany or gaboon faced plywood with wax finish.

Proportional Control

The external rhythm of fenestration and spatial organization internally is controlled by the golden diagonal of proportion, the large window walls being made up in each case of two G rectangles, with opening and fixed lights transferring this proportion to a smaller scale; the garage block is also placed in relation to a main diagonal.

Internally the dining and living area and related surfaces are G rectangles and the proportion is repeated vertically in the void. Initial sketch scheme took no account of the Golden Mean but it was found that by very little adjustment the proportional scheme could be applied.

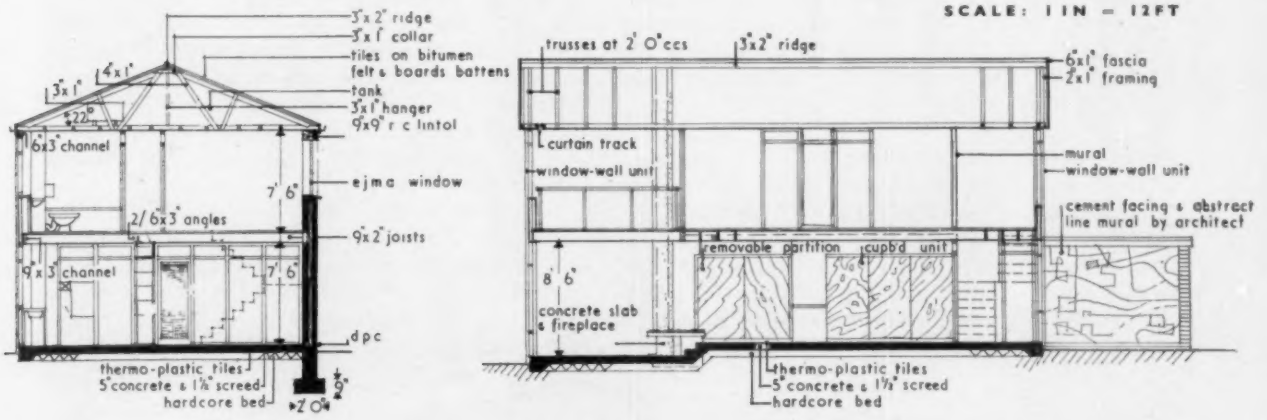
Atmosphere Control

The architect felt that too little attention has been given to providing complete atmospheric control of domestic environment by electrical power, and also that the vast potential of solar heat and energy must be harnessed as part of the New Technology, therefore it was decided to create an experimental framework which would incorporate: 1. An air to air heat pump installation giving complete air conditioning, hot water and refrigeration backed up by 2. Solar reflecting screens; 3. A kinetic Solar panel.

Air Conditioning

Year round air conditioning is provided by an air to air heat pump. During winter months heat is extracted from a heat exchanger on the roof of the garage. This heat is collected, raised to a higher temperature level and given up to the house. During summer months the system is reversed and heat is absorbed from the building and given up to the outside heat exchanger. A small room (5ft 6in by 4ft 6in by 7ft 6in high) is set aside for the main unit and heat pump equipment. The equipment, apart from the outside heat exchanger, which is piped to the main unit, is self contained and totally enclosed within a metal cabinet.

The fan for circulating the conditioned air is located within the cabinet and draws air first through a filter



Bedroom looking towards void and road.

House at Rickmansworth

and then through a heating-cooling coil, according to the season, before delivering the air through the ducting. Hot or cold air, treated as above, is circulated by a simple ducting system formed between first floor joists and by insulated metal ducting in the roof. These ducts are served by a main rising duct which houses all vertical hot and cold water pipes and also provides hot air for linen drying or airing.

Plastic diffuser cone outlets with individual control are set flush with ceilings and used air is extracted at ground level, via staircase and living room void, by an under floor duct which returns stale air to a machine in the Heat Pump for cleaning, etc., and recirculation.

The maximum capacity of the plant is 36,000 B.T.U./hr and the fan delivers 1,000 CF.M. Average discharge temperature is 90 degrees F. Output on the reverse cooling cycle is 30,000 B.T.U./hr. Considerable dehumidification is accomplished in the process of cooling. The unit is automatic in action and is controlled from a thermostat installed in a control panel in the kitchen. The estimated running cost in the winter season is in the region of £18.

Water Heater and Refrigerator

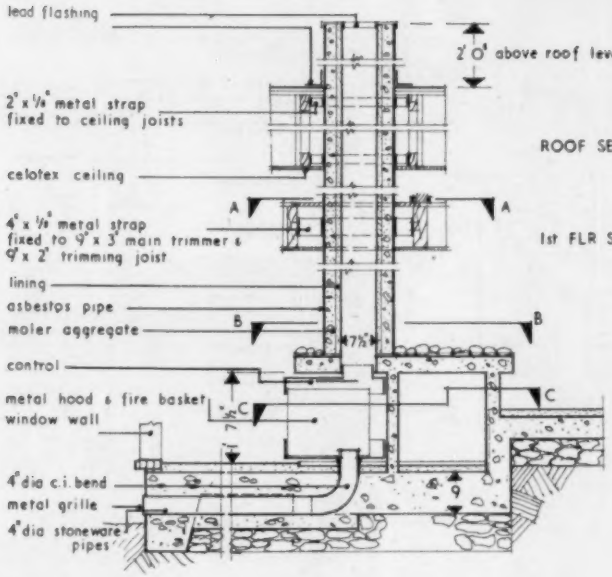
Domestic Hot Water and Refrigeration are provided by dual purpose heat pump. The unit, which is in two parts, i.e. refrigerator and water heater, represents the latest advance in the application of the heat pump for domestic use. The refrigerator is of the built-in flush mounted pattern, with a nominal capacity of 6 cubic feet and the usual ice making compartment and temperature control thermostat. The water heater is located in the heat pump room, with the large unit as described. Heat energy from the air in this room is absorbed by the appliance, regenerated at a higher temperature and given up to the water which is controlled by a thermostat at 140 degrees F. The unit is powered by a ½-h.p. sealed compressor integrally mounted within the water heating generator, but separated from the water. Projective switchgear guards against the possibility of damage to the compressor by overloading. The unit will provide up to 120 gallons of hot water per day for an electrical consumption of only 10 KW; the refrigerator does not consume any additional energy. The heat absorbed from the refrigerator compartment is added to the water and is generally sufficient to make up the heat leakage losses from the tank and pipes, etc.

Solar Heat

The Solar reflecting screens which flank the Terrace and pool on the East side, will have polished aluminium faces and will be adjustable for sun travel. These will be used at a later date, with a Solar panel on the internal wall face to the void. The panel (16ft 0in by 11ft 0in) will contain a heat retaining medium and will be used in conjunction with the main heating installation.

A basis for scientific study has been provided and temperature tests, etc., have already been instigated as a preliminary step to ascertaining the comprehensive effect of all systems. The Eastern Electricity Board are co-operating by installing meters to check all units, cooking, lighting, etc., on a day/night basis.

Continued on page 496



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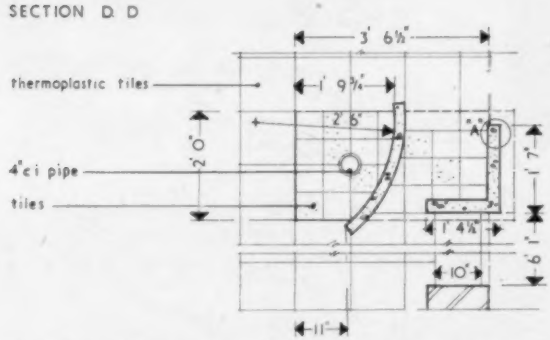
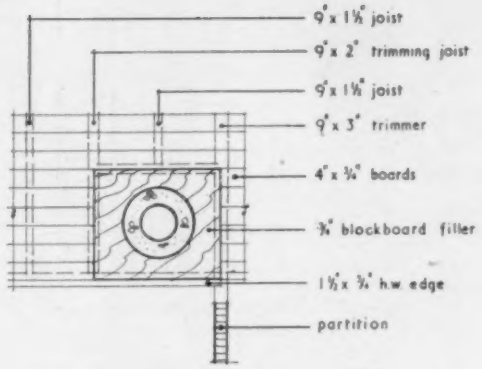
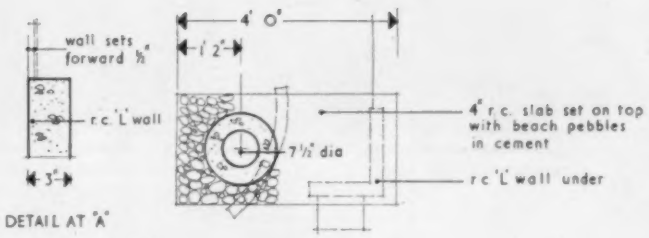


PLAN ON C C



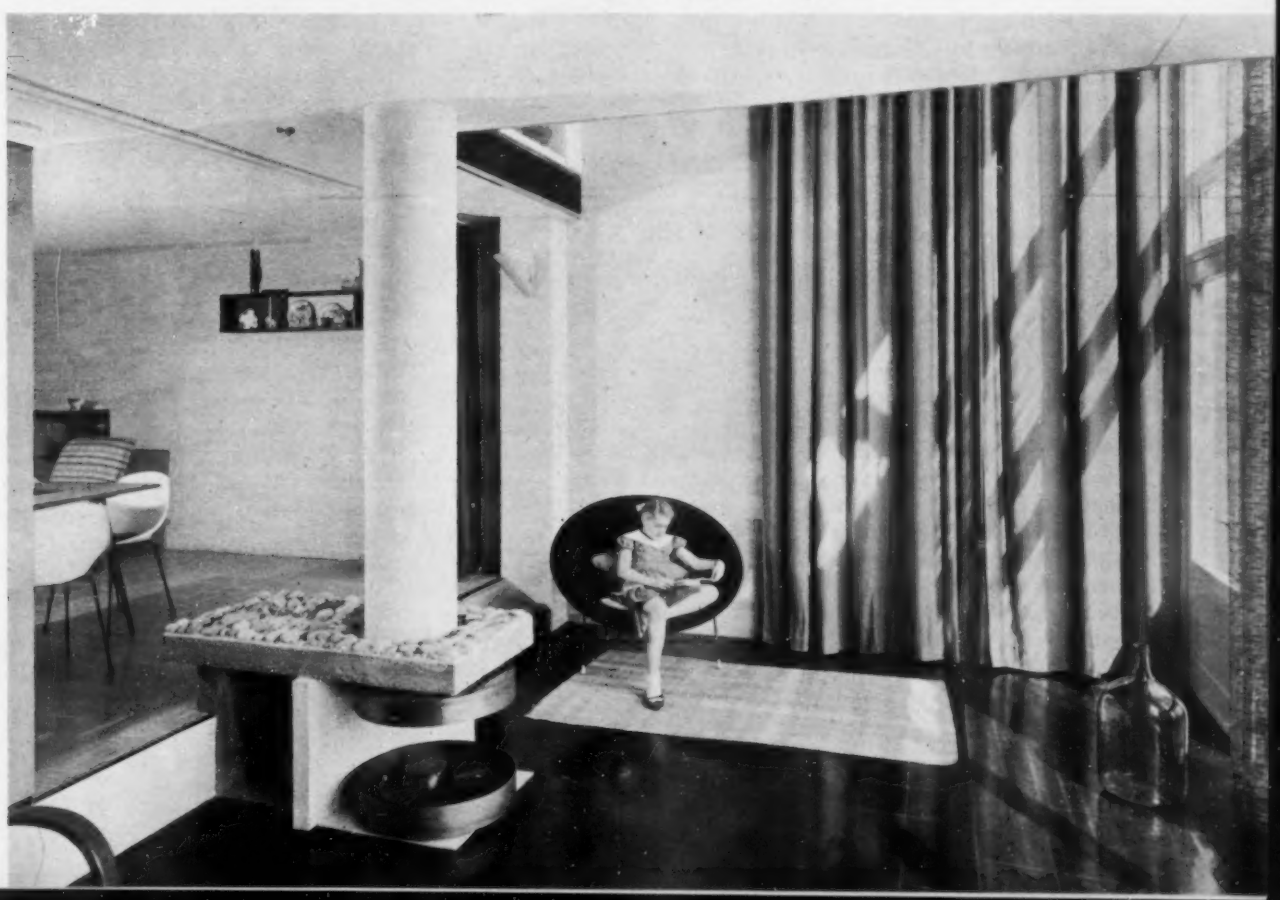
PLAN AT A A

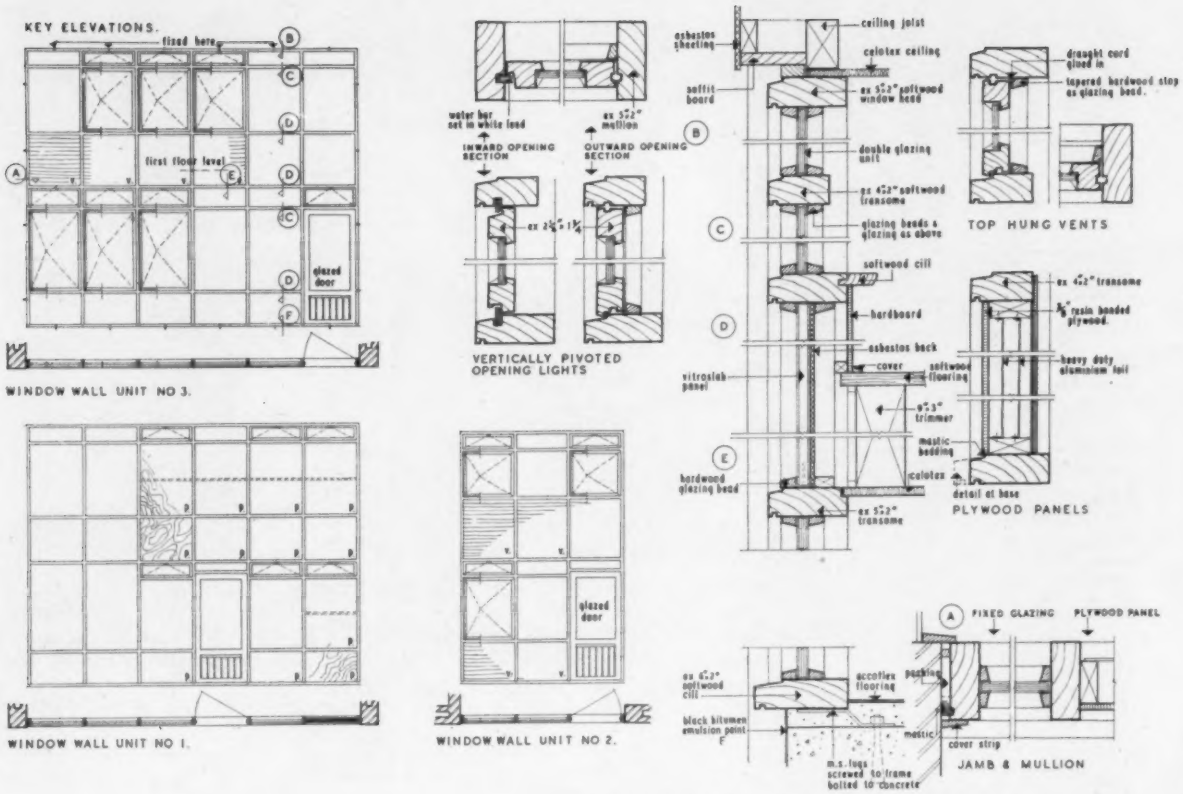


DETAIL AT 'A'

PLAN AT B B

Living area towards position of future solar panel. Fireplace detail. Scale : 1in = 1ft.





WINDOW PANEL DETAILS. SCALE: 1 IN = 1FT

House at Rickmansworth

Thermal Insulation

To gain full effect from the air conditioning system heat insulation is provided for by clear cavity, Plyglass and Vitroslab backed with Asbestolux to all window walls. An aluminium foil "wrapper" is hung centrally in the 3in wide cavity to load bearing walls, and is continued over the roof space. Over ½in Celotex ceilings are three layers of Crumple foil, plus a top layer of heavy duty foil. Celotex and 1in fibreglass are placed under the first floor. Cavities to resin bonded panels on the north window wall are insulated with two webs of heavy duty aluminium foil giving three air spaces.

Building Sequence

In an attempt to cut building costs and to speed up erection time, the basic framework was built in the following way. Ground floor slab was laid including extract ducts for air conditioning. From side foundations only, two longitudinal load bearing cavity walls of Hamhill Brunswick outer skin and Midhurst White inner skin, stiffened at ends with piers, were constructed to roof level. The first floor of 9in by 1½in joists was stiffened longitudinally at clear span by a 4in by 3in steel web supported on 2in diameter steel columns, one being utilized in the living area for light fittings, and the other to take swivel serving top in the kitchen. The corner of the balcony bedroom and the landing are supported on columns also.

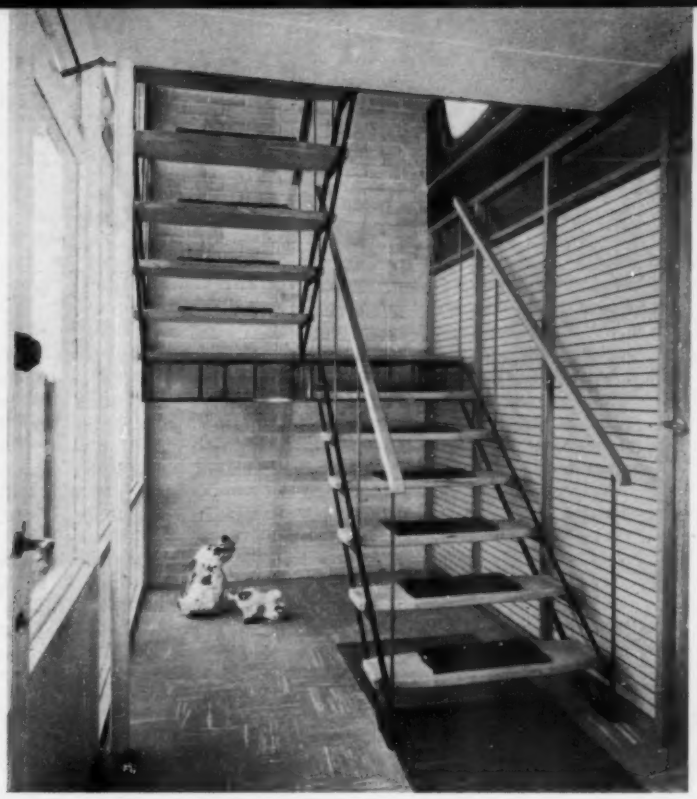
As the walling proceeded the complete aluminium foil "wrapper" was hung centrally from wall ties in the 3in wide cavity; horizontal laps were sealed with Bostic. Various operational methods were tried out to reduce labour time and proved most valuable.

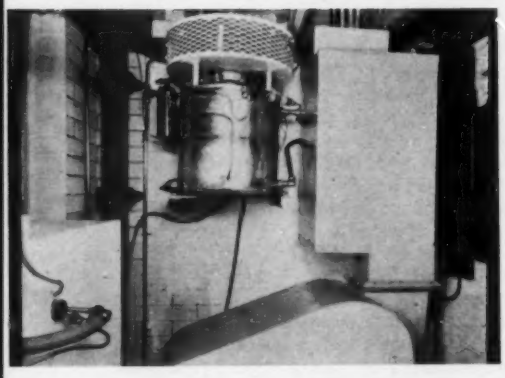
With the walling completed, timber roof trusses at 2ft 0in centres and of 22 degrees pitch were then positioned and covered with boarding, felt, battens, counter battens, and finished with grey Marley interlocking tiles.

Timber window wall panels for ends and side on a 3ft 4in module and basically of 5in by 2in main members, fabricated off site, were then fixed in position by 4 men in 4 days and double glazed or panelled. Parallel with these operations, the reinforced concrete fire slab and stack were cast and the first floor laid together with heat pump ducts between joists. The building then became a closed box with completely free space on both floors. Paramount partition units were next erected on the first floor in conjunction with floor to ceiling door frames; and ½in Celotex ceilings were fixed to both floors, enabling emulsion paint to be immediately applied.

Copper service pipes and internal single stack plumbling unit, with connections and metal ducting and aluminium foil insulation in the roof were now completed; and ground floor slab screeded and covered throughout with Accoflex tiles. Kitchen fitment, fixed and removable timber partitions, sink unit framing

Staircase : Welded metal framework with beech treads and handrail.





Heat pump room showing equipment being built in.

Kitchen showing built in refrigerator and air conditioning control panel.

and glazed screen on ground floor, storage fitments for first floor were positioned next, all having been fabricated off site. All joinery work was delivered complete in sequence, ready to fix, making full use of machine techniques and reducing site work.

Refrigeration unit was built into prepared framing with heat pump compressor and air conditioning unit positioned in heat pump room.

Times and Cost

The building was completed in 5½ months of winter weather and the contractor estimates that this time could be cut to four months by experience gained on the prototype. The total cost including garage, double glazing and ducting but not including site works or actual heat pump machines is likely to be under £4,000 when final figures are obtained.

LEGAL COMMENTARY

"Statutory Safety Requirements"

By F. H. B. LAYFIELD

THE common law duty imposed upon an employer to provide safe conditions of work for his workpeople was discussed in the last *Legal Commentary*. Mention was also made of the fact that, in addition, the employer must comply with certain statutory requirements. Unlike the common law these requirements are not based upon any general principle, and they do not form a code. Each statute, and even sometimes each regulation made under the powers of a statute, provides its own special rules and sets out its own definitions and tests. This presents the employer with the difficulty that he must discover whether each and any particular statutory requirement applies to the work he has in hand or to the place where that work is to be done. On the other hand once he has ascertained that, say, a regulation applies to the work he is doing then it is often easier to say with certainty what precautions will, if adopted, meet the demands of the statute than is the case with the common law. But if the two realms of law are different in some aspects they are not entirely separate or distinct.

Statutory Liabilities

A breach of a safety requirement created by statute is almost always an offence for which the appropriate authority may prosecute the offending employer. It is natural to ask therefore, if an employer is in breach of a statutory duty for which he can be prosecuted, can an injured workman also make a claim against him upon the same ground? This question was answered in detail by the House of Lords this year when they gave judgment in *Grant v. National Coal Board*. Lord Simonds said that:

"Where damages are claimed for breach of a statutory duty without any allegation of negligence, the . . . [claimant] must establish two things: first, that the breach is intended, not only to be visited by a penalty, but also to be the ground of civil liability to a class of persons of whom the . . . [claimant] is one, and, secondly, that the injury was one against which the legislation was designed to protect him."

This statement raises, in turn, the question of how can the injured person show that breach of the statutory duty was intended to give him a right of action. This was answered by Lord Reid giving judgment in the same case when he said:

"The question whether an employer is liable to an employee for injuries caused to him by breach of a statutory duty depends on whether there can be implied from the terms of the statute imposing the duty an enactment that the employer shall be so liable. In general that is implied from the enactment of a duty in the interest of the safety of employees . . ."

Lord Keith also made it clear, in his judgment, that the workman is not in any way debarred from his claim because he may be able to rely upon a breach of another statutory obligation. Referring to the Act involved in this particular case, Lord Keith observed that:

"I can deduce from the language used only that the section was passed for the protection of workmen and that if a workman is injured by a breach of the statute he has a remedy in damages against his employer. There may be some other statutory provision or regulation, on which he can rely, but there is no reason why protective provisions may not overlap, and it is common experience to find an injured workman relying, sometimes successfully, on breach of two or more statutory provisions or regulations."

One limitation to the employer's liability which must be borne in mind was mentioned by Lord Reid. It arises in this way. If a statute imposes a duty for a particular purpose and there is a breach of it will the employer still be liable if a wholly unrelated kind of damage occurs? This was what happened for example in *Gorris v. Scott*. There the purpose of the statute was to prevent the spread of contagious disease in animals and, in a ship, pens were required to segregate animals for this purpose. The pens were not provided on this occasion and, as a result, some sheep were washed overboard and lost. If there had been proper pens this would not have happened. It was held there was no liability because the purpose of the enactment was to prevent the spread of disease and had nothing to do with safety. Having reviewed these facts, Lord Reid continued:

"I do not doubt that the case was properly decided; if the enactment implied civil liability at all, then the appropriate implication was liability if a breach caused or contributed to a spread of disease. But it seems to me to be a very different thing to say that, where the object of the enactment is to promote safety, the implication is that liability only arises if the breach causes injury in a particular way. I do not think that there can be any general rule. In every case the problem is to ascertain the intention of Parliament from the terms of the statute —whether any and, if so, what civil liability is to be implied."

There are, of course, instances where the Act or the Regulations concerned are clearly designed to deal with a particular kind of damage. Only in such instances will it be insufficient to give a right of action to show that breach of the relevant duty has led to a type of injury different from that anticipated by the legislation concerned. For, as Lord Reid stated:

"If the statute is only aimed at preventing a certain kind of injury, then it seems reasonable to hold (as in *Gorris v. Scott*) that civil liability only results if that kind of injury is caused by a breach."

It will be noted that in such instances, the mere fact that a breach of a statutory duty does not cause the particular kind of injury at which the statute is aimed does *not* mean that the employer is not liable to *prosecution* for the breach even though he may escape *civil* liability.

The Onus of Proof

It is, of course, not sufficient for a workman who has been injured merely to show that there has been a breach of statutory duty; nor only to show that he has been injured. The onus of proof on the injured workman is substantially the same in the case of a breach of statutory duty as at common law. What the workman must show was clearly described by Lord Reid in a case heard by the

House of Lords earlier this year. Giving judgment in *Bonnington Castings Ltd. v. Wardlaw* he remarked:

"It would seem obvious in principle that a . . . plaintiff must prove not only negligence or breach of duty but also that such fault caused or materially contributed to his injury, and there is ample authority for that proposition both in Scotland and in England. I can find neither reason nor authority for the rule being different where there is a breach of statutory duty. The fact that Parliament imposes a duty for the protection of employees has been held to entitle an employee to sue if he is injured as a result of a breach of that duty, but it would be going a great deal further to hold that Parliament intended that any employee suffering injury can sue his employer merely because there was a breach of duty and it is shown to be *possible* that his injury may have been caused by it. In my judgment, the employee must in all cases prove his case by the ordinary standard of proof in civil actions; he must make it appear at least that on a balance of probabilities the breach of duty caused or materially contributed to his injury."

"*Persons Employed*"

It follows from what has been said that an injured workman, if he alleges breach of statutory duty, will often have to show that the relevant precautions are required for his protection. Some useful and interesting observations were made in this connection in *Massey-Harris-Ferguson (Manufacturing) Ltd. v. Piper*. In that case [reported A. & B.N., 12.7.56] a man employed by a firm of painters and decorators was painting in a factory when he came into contact with the supply lines to an overhead travelling crane and was electrocuted. It was alleged by the factories inspector that there was a breach of the Electricity (Factories Act) Special Regulations, 1908. As against this it was contended by the defendants that these regulations were made only for the benefit of the servants of the occupier of the factory, a class of persons which did not embrace the deceased man. Dealing with this point as regards these particular regulations the Lord Chief Justice described the attitude of the court.

"I think there is no question about it that these regulations now are intended to protect, not only the servants of the factory occupier, but any other persons who may be called upon to do work in the factory, such as sub-contractors. These are the type of people who particularly need protection. They are not accustomed to the work of the factory, they do not know anything about the working of these electric cranes or the details of the electrical installation in the factory. Therefore, it is all the more important if outside contractors are employed—and the appellants appear to do all their maintenance work by means of outside contractors—that they should be protected."

It is, perhaps, noteworthy that Mr. Justice Streatfeild who also gave judgment in that case, agreed with the decision of the Lord Chief Justice, and added:

"I am all the more glad to be able to reach that conclusion because it is particularly important that safety regulations should be observed for the employees of contractors who may be only occasional workmen in a factory . . ."

Dangerous Machinery

One of the most common sources of anxiety to employers and particularly contractors are their duties in regard to machinery. There have been a number of cases this year which have helped to make clear the way in which some Acts and regulations operate. The most pervasive and, perhaps, important enactment of this kind is the Factories Act, 1937. A case early this year dealt with the operation of Section 14 of that Act. That section provides, among other things, that "every dangerous part of any machinery, other than prime movers and transmission machinery, shall be securely fenced . . ." It was alleged in *Bullock v. G. John Power (Agencies) Ltd.* that the employers had neglected to comply with the requirements of that section. The plaintiff had been killed by material in a machine escaping and striking him (in this instance it was wire under pressure). It was said that the wire was "a dangerous part of machinery" and should have been securely fenced. Now the section also provides that "The Secretary of State may, as respects any machine or any process in which a machine is used, make regulations requiring the fencing of materials or articles which are dangerous while in motion in the machine." These are important words for as Lord Justice Denning pointed out "the section itself draws a distinction between parts of machinery, on the one hand, and materials or articles which are in motion in it on the other hand." Giving judgment, he continued:

"The truth is that the whole piece of wire was being worked on in this machine . . . It was material in the machine and not part of the machinery. The Act does not require material to be fenced. It is left to the common law . . . and the plaintiff not having proved negligence at common law the action must fail and she must be left to her remedies under the industrial insurance provisions."

The Court of Appeal came to exactly the same conclusion in the case of *Kilgollan v. William Cooke & Co. Ltd.* which was mentioned in the last *Legal Commentary*. The employers were held not to be in breach of their statutory duty because the dangerous thing was material ejected from the machine and not a part of the machine. The vital difference between *Bullock's* case and the *Kilgollan* case was that in the former no similar accident had ever been experienced before in the factory, and there was, accordingly, held to be no negligence at common law, while in the latter case there had been repeated similar accidents and it was considered that there had been negligence.

Another exception to the requirements of Section 14 of the Factories Act, 1937, was discussed in *Stringer v. Automatic Woodturning Co. Ltd.* In this instance the plaintiff, a young girl, had been injured by a circular saw. It was alleged that the saw, being a dangerous part of a machine, should have been securely fenced. On the other hand it was admitted that the saw was equipped with protective devices which were exactly as prescribed by Regulation 10 of the *Woodworking Machinery Regulations, 1922*. These regulations are deemed to have been made under the Factories Act, 1937 (by virtue of Section 159 of that Act). The vital question was this: was the requirement of the Regulation or that of the Section to prevail. Lord Justice Jenkins, having reviewed the case which dealt with the relation between the Factories Acts and regulations made under those Acts, decided that:

"The plaintiff cannot succeed on the ground of breach by the defendants of their statutory obligation to fence under Section 14 of the Factories Act, 1937. These cases seem to me to provide clear authority for the proposition that the obligation of a special regulation, such as Regulation 10(c) of the Woodworking Machinery Regulations in the present case, where such special regulation has been duly complied with, is to be regarded as *substituted* for the more general obligation as to fencing contained in Section 14 of the Act."

Lord Justice Singleton put the same view in another way when saying that:

"In the present case we are dealing with a circular saw,

Statutory Safety Requirements

and with nothing else. But for the regulations, Section 14 of the Act would have applied. If the regulations apply to the saw they *modify* the obligation of the employers. The employers fulfilled their duty in regard to the circular saw if they provided that which they had to provide under the regulations as a guard for the circular saw . . ."

Yet it must not be thought that the matter necessarily stops there. As Lord Justice Hodson pointed out in this case.

"The position of the Court I think is this: Although in many cases where dangerous operations are covered by regulations, compliance with the regulations would absolve an employer from liability in the case of accident, yet the Common Law is not helpless to fill up gaps, because the duty of the employer remains. The duty is not to expose his employees to unnecessary risk, and that duty is not ousted by regulations."

A further difficulty may be involved where compliance with statutory provisions is concerned as appears from the case of *Quinn v. Horsfall & Bickham Ltd.* Here a man was working on a metal milling machine when he was injured. That machine was fitted with a guard but the guard did not satisfy the requirements of Section 14 of the Factories Act, 1937. The defendants' reply was that the *Horizontal Milling Machines Regulations, 1928,* applied, and therefore the provisions of those requirements were to be substituted for those of the section.

"The result of the . . . Regulations . . . is that when the cutters on milling machines are being used other than for the purposes referred to in the exemptions those cutters must be fenced in the way laid down by Regulation 3."

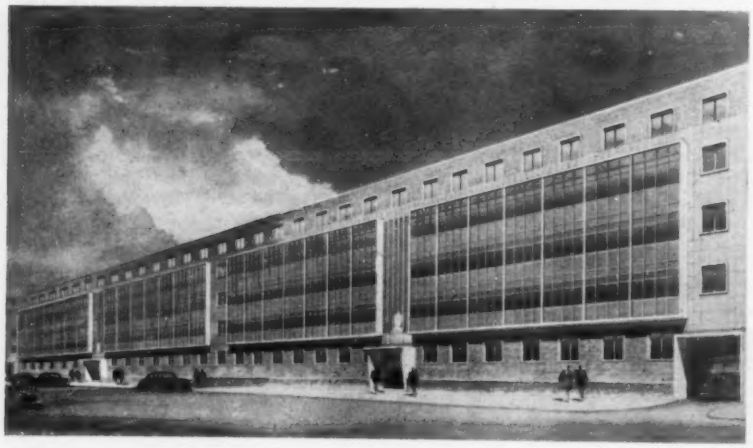
Had the matter ended there, doubtless, the employers would have been safe. But one of the exemptions was that Regulation 3 was not applicable to cutters used for "automatic profiling" which was the job the plaintiff was doing when he was injured. Furthermore the regulations also contained a proviso which, said Lord Justice Morris, meant in this context that "the exemptions shall not prejudice the application of Section 14 in regard to the fencing of such cutters, namely, cutters that are being used in one of the exempted processes."

Thus by means of an exemption to the regulations the duty of the employer reverted to observance of Section 14. As that section had not been duly observed there was, accordingly, held to be a breach of statutory duty.

Summary

Many safety requirements which must be observed, not only in factories and workshops but on building sites and elsewhere, are now the subject of statutes and of regulations made thereunder. In order to decide whether any of these statutory rules apply to a particular case it is necessary to refer to the actual enactment for its terms. A breach of duty so imposed will normally render the employer, or sometimes the person in charge of the site or premises, liable to prosecution. This liability is of course, regardless of whether an accident has occurred as a result of the breach or not. If an accident should occur then the persons injured may be entitled to sue the employer, in addition to the employer's liability to prosecution, provided certain conditions are satisfied. These conditions include two of prime importance; in the first place the workman must show that he is a person for whose safety and protection the relevant precautions were made obligatory and, secondly, that he belongs to a class of persons to whom the Act concerned was intended to give a right of action. This latter condition is usually satisfied, by implication, if the enactment concerned clearly is made for the safety of the relevant employees. If these conditions are satisfied the employee will probably still have a right of action even if the injury which has occurred was not precisely the kind of injury likely to have resulted from that particular breach of duty, *unless* the statute is clearly only aimed at preventing a particular class of injury of which the injury concerned is not one. The injured person in order to succeed must show not only that there has been a breach of statutory duty but also that the breach in question caused or materially contributed to the injury of which he complains, or at least that this is so on a balance of probabilities.

If an employer is put under a duty to take precautions by the provisions of a section of an Act, it is always important for him to ascertain whether he has discharged or avoided that duty if he complies with relevant detailed regulations made under the same Act. Each case will need to be examined on its individual facts and it is not safe to say more than this: the employer should be aware that if regulations apply to a machine or an operation then it is likely that those regulations are in substitution for, and not in addition to, the more general requirements of the Act under which those regulations were made. Care must also be taken to ensure, though regulations may apply generally to a machine or an operation, that there are not exceptions or exemptions which throw the employer back upon the more general requirements of the parent Act.



Perspective of Gavrelle House now being built at 2-14 Bunhill Row, E.C.1. Due for completion at the end of '56 it has 63,000ft sq of office space and a basement car park. Street frontage is 380ft with a similar length at the back facing the Hon. Artillery Co. ground—a permanent open space. Architect: A. G. Paton. Contractors: Bernard Sunley & Sons.

Information Digest

OFFICIAL PUBLICATIONS

● **British Standard Specifications,** from British Standards Institution, British Standards House, 2 Park Street, London, W.1. Telephone : Mayfair 9000.

B.S. 874 : 1956. Definitions of Heat Insulating Terms and methods of determining thermal conductivity. Price 5/-.

B.S. 1244 : 1956. Metal Sinks for Domestic Purposes. Price 3/-.

B.S. 1329 : 1956. Metal Lavatory Basins for Domestic Purposes. Price 3/-.

B.S. 1763 : 1956. Thin P.V.C. Sheeting (Flexible, unsupported). Price 10/-.

B.S. 2739 : 1956. Thick P.V.C. Sheeting (Flexible, unsupported). Price 6/-.

B.S. 874 is a clarifying and co-relating document which has its value for those specializing in heating and insulating matters so is not primarily of interest to the architect and builder necessarily restricted to close approximations. Where products from abroad are being considered whose thermal values are described in unfamiliar terms or whose values differ from those in this country conversion tables are provided. The "joule" is now adopted as the fundamental unit of heat as in B.S. 350: 1940, Amendment No. 4, October, 1953 (P.D. 1715), defining also corresponding values for the revised "steam table British thermal unit" and revised steam table calorie. These changes are stated to have negligible effect on insulation calculations. Of particular importance is the revision of the methods of measuring conductivity, thermal conductance and thermal transmittance of heat insulating materials.

B.S. 1244 covers sinks in stainless steel, enamelled pressed steel and enamelled cast iron. Requirements for resistance of enamel to abrasion, acids and alkalies are given. Overall sizes remain unchanged so as to allow of interchangeability, but minimum bowl sizes now laid down allow some flexibility in detail and design. Single sinks without draining boards are no longer covered. Positions and types of wastes are allowed greater freedom. B.S. 1329 deals with parallel changes relating to lavatory basins in stainless steel, enamelled pressed steel and enamelled cast iron. Requirements for resistance of enamel to abrasion, acids and alkalies are given. The overall dimensions for the metal sinks are similar to those for ceramic ware. Details are also given for pedestals, while the basin design allows for the use of taps, wastes and brackets to appropriate B.S.

B.S.S. 1763 and 2739 describe the quantities required as to permanence of dimensions, colour, pattern, print and flame resistance of sheets from 0.004in to 0.35in thickness and their tear strengths. With the interest in these as wall coverings and upholstery materials the issue of these is of importance. All conforming are required to be labelled as to manufacturer and to bear the kite sign.

● **Building Research Station Digest No. 91. August 1956. The Programming of House-building. H.M.S.O., price 3d.**

A properly balanced labour force is clearly fundamental to a well-organized building contract. This digest shows how time can be lost through shortages in trades by charting the manhours needed for a pair of semi-detached houses. The various operations from taking over a vacant site to completion have been examined, and a "master" operation in each of four stages in construction noted.

The trades have been analysed as to manhours needed for the houses, e.g., general labourers 490, bricklayers and labourers 1,100, in the aggregate, while these totals can be broken down to individual targets by dividing by the number of operatives in each trade. Comparisons are given of balanced and unbalanced forces thus:

Unbalanced

4 general labourers @ 122 = 488 manhours
3 bricklayers, 2 labourers @ 220 = 1,100 manhours

Balanced

5 general labourers @ 98 = 490 manhours
6 bricklayers, 4 labourers @110 = 1,100 manhours

The key trade in the houses examined was bricklaying so the doubling of the bricklaying and associated labourer force shortened the time in days for this work so avoiding unproductive time for plasterers who in both cases only took up 330 manhours. The time cycle, through properly balanced trades, was consequently just about halved. On such small jobs it is evident that some unproductive time must be expended but the periodic coming and going of trades engaged during one contract can be much reduced.

The digest also suggests creation of teams to do specific works repeated in houses in turn. Repetition results in the members gaining speed and working more co-operatively while parallel gangs on similar jobs may be influenced by competition to seek to improve their achievements.

The digest suggests that a Progress Engineer should be engaged on large housing contracts to supplement the Agent, with the duty of ensuring a steady flow of material to all trades, getting scaffolding erected at the right time and by varying the manpower of gangs to suit emergency conditions as they arise. Suggestions are given for analyzing the work graphically, as by marking the elevational drawing with areas representing a day's work by the bricklayers and which enable losses and gains on the programme to be seen quickly. This suggestion is illustrated in the first Figure, while Fig. 2 gives two stages in the form of a Progress Chart based on skilled and unskilled trades, working days and sequence of operations up to laying of oversite slab. Fig. 3 gives the form of the Progress Chart for bricklayer and carpenter above d.p.c. while Fig. 4 gives the same information for finishings and including plumber and electrician. Each Chart is analyzed into gangs and number of operatives in each trade.

The Progress Charts are more detailed than is customary, at any rate in the presentation and should result in unbalance in the early stages of continuing housing contracts to be noted and adjusted. The unpredictable effect of uncongenial weather is referred to in the suggestion that a day or two be added here and there to allow for delays but these can affect one trade much more than another—e.g., final site works while painters are still at work internally—which could throw the programme out of gear.

● **Timber Industry in Europe 1955. A Study by the Timber Committee of O.E.E.C. H.M.S.O., price 11/-.**

O.E.E.C. annually examines a number of industries and its reports cover markets during the past year and trends forecasting the future. The past year has continued for expansion of the market in sawn softwood and pulpwood, despite increased prices and restrictions, partly due to rises in freight charges but meeting with some resistance from government and trade consumers.

Information Digest (continued)

There is some concern about the future of the trade in sawnwood and propaganda campaigns for increased consumption are contemplated; not the least worrying factor being the growing elimination of sawnwood by substitutes and alternatives, as in house construction where no wood whatever need be used in some patented designs. Another instance cited is the development of metal and plastic skis—both these are probably insignificant in themselves but show the trend of invention. Propaganda is therefore to be based on technical and economic arguments.

The report is one for the timber trade and economist but points are made, as for example in the references to the uses of sawdust and shavings, which show that declines in some markets may be more than balanced by the invention and development of new wood-base products.

TRADE ASSOCIATION PUBLICATIONS

● **Alar LM21.** Revised individual data sheet for Aluminium Casting Alloy LM21. Alar Ltd., 3 Albemarle Street, London, W.1. Free.

This leaflet takes the place of the previous issue known as ALAR 21 since the latter is now incorporated in B.S. 1490. It lists the Chemical Composition, Mechanical Properties, Strength at Elevated Temperature, Physical Properties, Machinability, Corrosion Resistance, Anodising, Casting Characteristics, Heat Treatment and a concluding note on application and general information. References are given to alternative alloys having similar or better qualities for certain uses to save the design engineer from having to make extensive and time absorbing comparisons when selecting alloys.

TRADE PUBLICATIONS

● **Gas and the Schools Meals Service.** Gas Council, 1 Grosvenor Place, London, S.W.1.

This is a useful guide to the equipment required in kitchens generally but are specifically related to the provison of midday meals, as given in M.o.E's Building Bulletin No. 11.

Each item of equipment except refrigerators is described and recommendations are made as to location in relation to other equipment or rooms. Approximate dimensions are given.

The sequence of planning is given, e.g., 1. Entrance to storage centres (dry store, vegetable store or cold room), 2. From storage centres to food preparation, 3. From preparation to cooking, 4. From cooking to hot cupboard for service, 5. From hot cupboard to service counter and dining room, 6. From dining room to wash-up and 7. From wash-up to refuse and swill bins. This logical sequence is not always understood by those new to kitchen planning and cannot always be appreciated when studying kitchen layouts of which a number are illustrated, to cater for 150, 350, 500 and 1,500. Other plans show an arrangement for a boarding school for 200, and a technical college providing both meals and snacks. In each of these care has been taken to see that there is direct access by hatch or door from the dining area to the wash-up, conforming to a very sound principle.

A table is given of the minimum amount of gas-operated equipment which would be needed for normal and for family service, catering for from 75 to 600 persons. Sinks, benches, counter space, etc., are not given but the plans give useful clues.

● **Blacknell Design Sheets.** H. & H. Blacknell Ltd., Farnborough, Hants.

Prefabricated timber framed buildings are shown in this set of twelve sheets covering sports pavilions, village halls, offices, canteens, etc. The prefabricated panels are about 8ft to 10ft long and pre-drilled for fixing to base and to adjacent panels. Externally the cladding is either composed of rebated weatherboard or t. & g. boards. Windows and doors are provided in the panel units as required and no materials are needed for erection and completion beyond those supplied by the makers, including fixing bolts, roofing material, glass, gutters and down pipes, but sanitary fittings, etc., are not available.

The designs shown range from the mundane to the acceptable even if none shows much architectural merit. At least one appreciates that the larger buildings illustrated have good, simple lines and windows of inoffensive shapes which might be repeated in the smaller buildings.

Western Red Cedar is used for some of the framing and insulation to walls and roof can be provided at an extra charge in ½in insulation board. Alternative roofing materials are available. Trusses of various types are offered according to the spans, most of them knee-braced but plywood cased portal frames are also used.

The designs in this series are in the main only indicative of the range of uses to which the various constructions can be put. Full technical services are available to assist in preparing modifications of any of the types shown to suit circumstances.

Also offered is the "Goliath" range of prefabricated timber buildings, having roof spans from 20ft to 35ft, and lengths in multiples of 5ft. These have double-rafter-and-collar trusses and prefabricated wood roof panels as for the smaller buildings. Alternatively, steel trusses are available. Roof covering is 2-ply felt with alternatives of mineralized felt or tiles. Windows, doors, bolts, ironmongery, wall linings of insulation board, hardboard or plasterboard, glass, gutters, etc., are all included in the specification. Cladding to walls can be either rebated weatherboard with t.e.g. boards to gables, corrugated asbestos or corrugated steel.

The use of prefabricated panels in the construction of these buildings, each to a standard width, enables changes to be made in their arrangement at any time by virtue of the bolted connections while demounting and re-erection on another site is a practical and economic proposition should the need arise.

● **Caught Red-handed!** The Pyrene Co. Ltd., 9 Grosvenor Gardens, London, S.W.1. Free.

This title introduces a "rate-of-rise" fire detecting system. Abnormal rises in temperature may operate any of a group of sixteen fire detector heads linked with a control unit. This unit has a signal lamp showing normal operating conditions and fire and fault warning signals. The warning system can be transmitted to a fire report centre or to the public fire brigade through a G.P.O. line. This last service is of particular value after the premises have been vacated by staff at the end of the working day. The fault-warning signal is by lamp and buzzer, operating when a fault occurs in the electric wiring, telephone lines or in the main supply. A red lamp and bell give the fire warning. A periodic maintenance service contract is available covering the whole of the installations.

● **Cables by Aerialite Ltd.** Aerialite Ltd., Castle Works, Stalybridge, Cheshire. Free.

The full range of this company's products is listed, described and illustrated in this book and consequently covers Rubber and Thermoplastic cables and flexibles. These are suitable for domestic and industrial electrical installations, mining, farms, street lighting, cars, TV, radio and electronic applications. It is noted that where applicable cables and flexibles are to British Standards but other non-conforming but equally reliable goods are also marketed. Research work continues so as to improve the techniques involved with particularly marked results in the Aeraxial range of co-axial cables.

● **Progress Sheet H.** Frederick Thomas & Co. Ltd., Everton Buildings, Stanhope Street, London, N.W.1.

Glassware for electric lighting for shop, display and home use is illustrated in eight patterns, all in Triplex Opal. Suitable rod pendants are also offered in satin brass with matt white ceiling caps. The glass is finished with a satin velvet texture on the outer surface in preference to a high gloss.

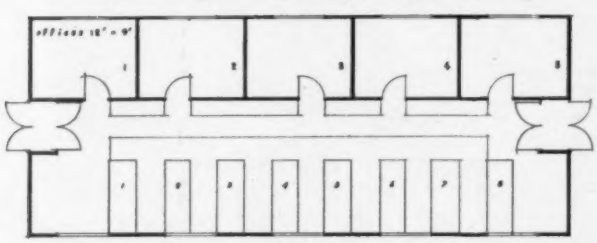
The shapes offered conform with present-day modes based on bottles and barrels, all in small scale, the largest being 15¼in high by 5½in diameter. The shades are each designed to take tungsten bulbs of stated wattage which run from 60 watts to 150 watts, larger shades for more powerful bulbs can be made. One shade only has decorative treatment in the form of a vertically striped band either etched or fired black.

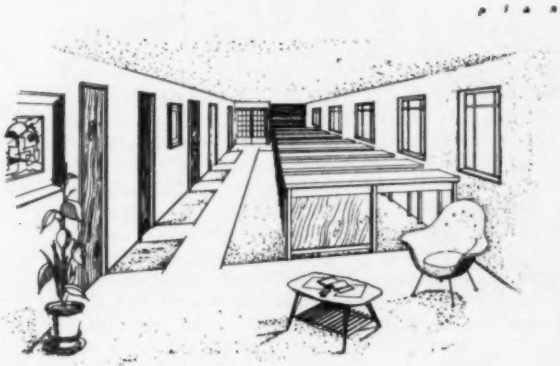
The shades can be grouped effectively in multi-light suspensions. Six are illustrated having from two to eight shades in each. The suspension frames are in rod, finished matt black with matt white ceiling cup.

● **Shipston Construction.** Maycrete Ltd., Parliament Mansions, Abbey Orchard Street, Westminster, S.W.1. Free.

This technique has been developed for prefabricated buildings of single storey height—principally dwellings.

One arrangement of a Shipston office building.





The framework is extruded aluminium alloy which in the house component is grooved to receive the wall cladding and lining. The module is 36in with provision for a half-module.

All parts are standardised and, for overseas work, designed for erection by local semi-skilled labour. Aluminium alloy soleplates are rag or gun-bolted to the concrete slab and to these are fixed the uprights which are made rigid with brackets and in addition have wind-bracing within the wall thickness when required. Posts occur at corners, partition junctions, window and door openings. The roof framing is normally supported on wood joists at 3ft centres, which carry the aluminium rafter framework which in turn carries the trough-section aluminium alloy sheets at 22½ degrees. Ceilings are hardboard, cut to size for fixing to wood joists and noggings.

Internal partitions are also framed up on aluminium with additional framing to receive the hardboard at 18in centres.

Thermal insulation is provided by 1in glass wool blanket, the "U" value being about O.18. When required this can be improved to O.10 without alteration to construction.

The buildings illustrated by photographs are all houses in hot climates and do not indicate the extent of glare, if any, from the cladding of aluminium. The designs are quite pleasant and the horizontally ribbed treatment of the external sheets gives interest to the cladding.

Provision is made for fly screens, ventilated roofs, etc., and all materials needed for erection are included in the shipment, including timber impregnated against termites when necessary. Equipment included are sanitary fittings, cisterns, pipework, electrical harness, either solid fuel water boiler or immersion heater in cylinder. Kitchen equipment is of a good standard but refrigerator, cooker and washing machine or clothes boiler are optional extras.

A number of sketches of bungalows is included showing on plan various permutations but none is of the "open floor" type which might be more suitable to hot countries. The adaptability of the system is amply demonstrated in the designs for Admiralty housing which are quite extraordinarily inept both as to plan and elevation, creating problems in any form of construction which presumably Shipston have managed to overcome.

Larger buildings such as schools, barracks and small industrial buildings can also be provided in somewhat similar construction.

● **Yale Locks for Master Keying.** Yale & Towne Ltd., Willenhall, Staffs.

A comprehensive brochure has been prepared of this firm's cylinder locks ranging from small padlocks to long mortice locks, all designed for master-keying. The range appears to allow for every requirement in a building, so much wider than one associates with the customary night latch. The variations in types offered are briefly described, such as dead locking, double throw and inside-and-outside key action, to suit various forms and degrees of security which require study to understand their best use and conversely an understanding of the clients' security needs in detail to decide which of the wide range fits precisely the requirements.

As mortice locks, the cylinder system is adapted to operate with a normal case and is available with a double cylinder to work by key from inside and out. Hook and sash locks are also available in the cylinder principle and capable of being mastered.

Information Digest (continued)

● **Hurseal Heat.** Hurseal Ltd., 229 Regent Street, London, W.1.

Two folders have been issued illustrating the range of oil-filled electrically heated radiators, towel rails, etc. One folder gives the basis for estimating the wattage required for room sizes, also taking into account the exposure factor of the walls and ceilings. All are heat controlled, either by fixed cut-out or by built-in or wall thermostats. The radiators are available either as fixtures permanently wired up or movable on castors or feet with flexible connections to socket points.

The other folder gives retail prices, type numbers, dimensions, heating surface and approximate weights. Choice of colour is available on some models. All models are for AC but arrangements for DC can be made on some of the types.

● **Single Storey Industrial Buildings.** Cement & Concrete Association (in conjunction with the Joint Committee on Structural Concrete), 52 Grosvenor Gardens, London, S.W.1. Telephone : Sloane 5255.

A representative selection has been made of recent factory construction employing concrete in one form or another to give a very interesting review of structural design in this medium.

The booklet is divided into sections headed Engineering, Factories for Letting, Pottery, Electrical, Rubber, etc., which, ignoring the confused use of nouns and adjectives, remains unenlightening when a much better division would have been. Shell (part pre-stressed), Shell, Shell North Light, Portal, Post & Truss, etc., for shell roofs are illustrated which roof factories for letting, electrical work, and paper. Moreover, the editorial makes the point that concrete-framed factories having large spans are readily adaptable to many kinds of manufacturing processes.

Ignoring, then, the artificial division adopted, it appears that new ideas are always cropping up, as in the I.C.I. factory at Middlesbrough where the valley beams of the vaults are pre-stresed in one area but this was not necessary in another part due to more favourable ratio of chord dimension to column centres. Pre-stressing was also used at the Murphy Assembly Shop (architect, C. W. Hutton, F.R.I.B.A.) but only in the ties which tie the edges of the "wings" formed by the two sections of the vaults rising on either side of the valley beams. The travelling framework designed by the contractors (John Laing & Son Ltd.) was also a feature of this contract. Barrel vaults are also used on factories for letting at Crawley New Town, cheapness being a factor in deciding on this type of construction which is an unexpected merit. Fixings for lifting tackle and other overhead equipment have been provided in all parts for the benefit of tenants occupying parts only of the factory structure.

Another form of shell construction was used on a factory for Bowater at Sittingbourne (Farmer & Dark, architects, C. V. Blumfield, B.Sc., Consulting Engineer) in which barrel-shaped frames formed of steel tubes and expanded metal were prefabricated and lifted by crane on to the T.C. supporting beams. Twelve vaults composed of steel tube and mesh were placed in position in three weeks and the *in situ* concrete topping added, the whole of the roof, 450ft by 60ft being completed in five weeks. The underside of the expanded metal is rendered.

A very fine effect is obtained in a factory at King's Lynn for Fropax (H. G. Cousins, B.Sc., for Chisarc and Shell "D" Ltd.) where the seven barrels have chords of 28ft and span 112ft. The valley beams and shells are cambered about 4ft.

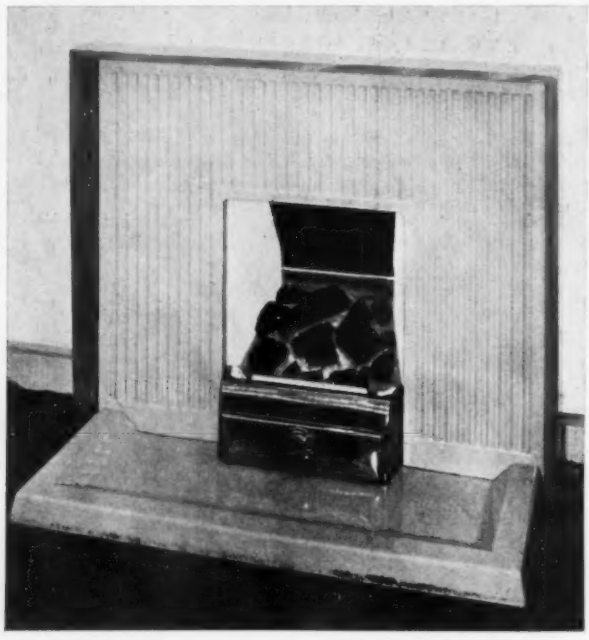
Four examples of North Light barrels are shown which differ in detail only.

Pre-stresed work is illustrated in many jobs, largely post and beam types and many have pre-cast posts, cranked beams and purlins with a number of interesting features. A factory at Pontyclun for the South Wales Concrete Pipe Co. Ltd., has pre-cast normal r.c. columns 18ft 2in clear height and pre-stressed concrete equi-pitch trusses over of normal triangulated panels.

Thermal insulation has been described where incorporated. For the Murphy factory 1in cork was used on the roof, while ½in and 1in vermiculite screed has also been used. Many factories appear to have no protection against solar gain or winter loss.

The designs are all interesting but few seem to have originality in appearance whatever ingenuity there may be in the structural design. There is still scope for improvement in appearance and in design technique and it is worth noting that Swiss engineers have now evolved an economical method of designing North Light vaults which require no ties or props to the top edge.

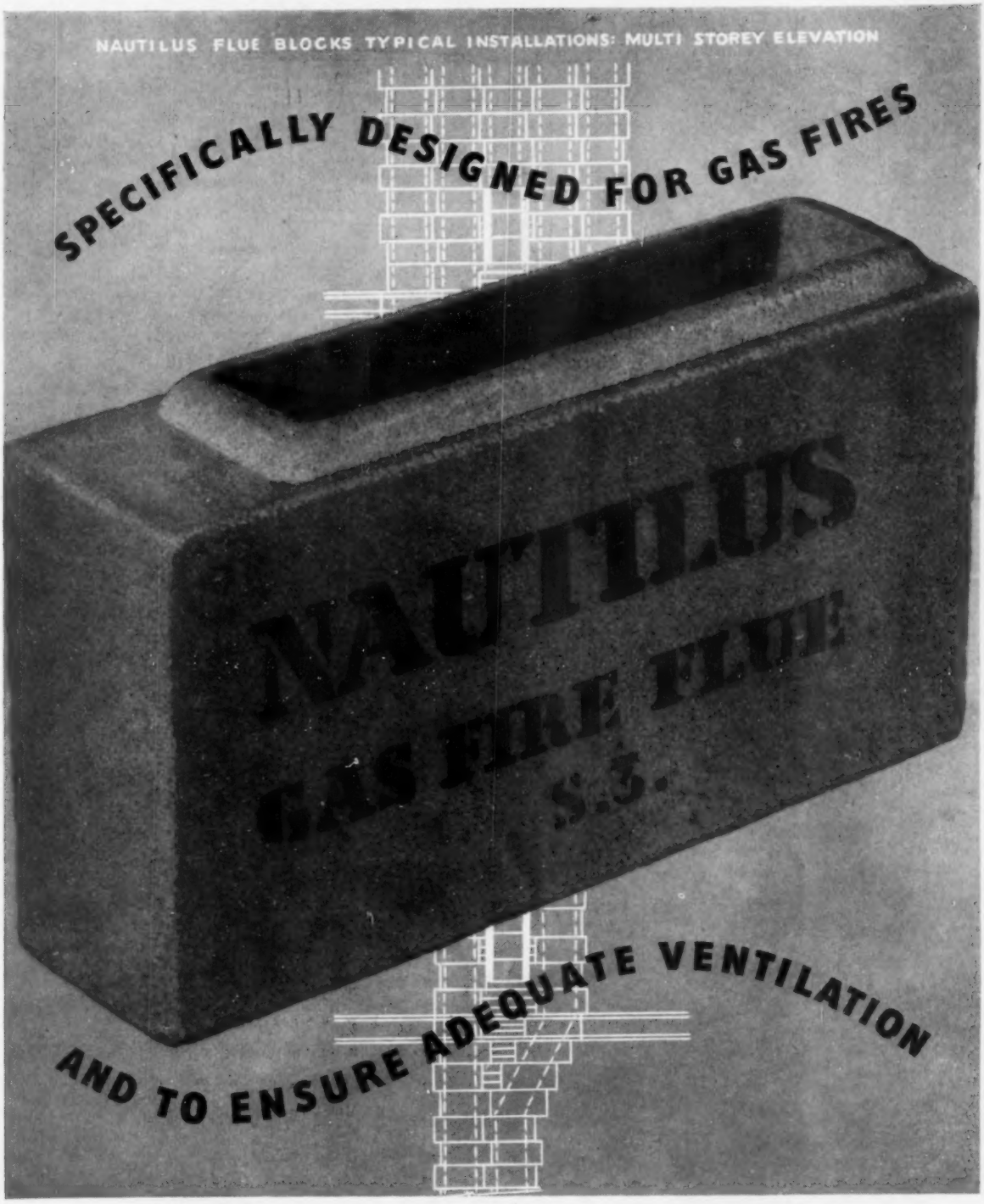
No. 200. Cast iron surround, by Allied Ironfounders, with wooden outer trim. Shown here with Lowburn fire No. 50.



● **Cast Iron Enamelled Fireplaces.** Allied Ironfounders Ltd., 28 Brook Street, London, W.1. Telephone : Grosvenor 8941.

It seems odd that, at a period when through the modernization of out-of-date housing, architects are having some thousands of cast iron fireplaces thrown out, anyone should try to sell cast iron fireplaces to put in their stead. The old fine-cast raised basket grates and backs were excellent pieces of work and gave out good heat though perhaps at rather a high rate of combustion. Other old cast iron grates were mean and ugly and unendurable.

The new fireplaces are offered finished in "attractive shades of vitreous enamel" but no colours are quoted although some ordering details are given. Presumably the buyer has a choice? The quality of design offered is mixed. The No. 200 suite has a simple reeded front with wood (kind not stated) trim around. The No. 195 is



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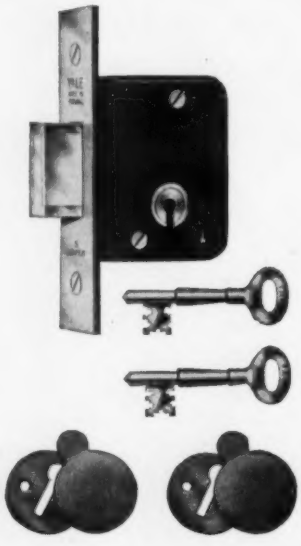
MNS
I

Free House!

It wasn't supposed to be an invitation. The trouble is so many old locks do no more than just keep the door closed (and sometimes not even that) whilst real security measures are non-existent. The safest course if you value your property is to re-equip all important doors inside and out with the world's most reliable locks – YALE. There are YALE locks and padlocks to meet every security risk. Here is an example:



M.555 LEVER MORTICE DEADLOCK

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Where there's a door there's a need for

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Information Digest (continued)

similar but without wood trim. The former, with back boiler, costs about £21 and the latter about £17, both including enamelled cast iron hearths and curbs. A convector pattern is offered as Type 190C with hearth, curb and back boiler at about £34.

Other designs are offered but scarcely achieve the quite modest standard of appearance of the three quoted.

● **Belling Electric Fires and Cookers.** Belling & Co. Ltd., Bridge Works, Southbury Road, Enfield, Middx.

Two catalogues are now available, one in booklet form and one as a double-sided folder for wall display. Both have full colour illustrations of the larger items of equipment and show electric fires, cookers, convectors, drying cabinets, bed warmers, towel airers and boiling rings and plates.

Many of the fires are old acquaintances, some based on even older fashions to appeal to "period" enthusiasts while some of the fires and most of the convectors are well designed with lines to fit in with "contemporary" furniture. The "Overnite" heater is now introduced where low tariff night supplies are available. Various commercial and industrial warm air heaters from 250 watts are also offered. The range of cookers includes the Belling Plus Auto-timer which has clockwork switches for automatic on-and-off switching combined with thermostatic control. A "reminder-timer" gives audible warning when cooking time has expired.

● **Escape from Fire.** Fire Protection Bulletin, Fire Offices Committee, Fire Protection Association, 15 Queen Street, London, E.C.4. Free.

This Bulletin deals with cut-off doors to staircases, minimum widths of doorways and stairs and number of steps in a flight. It therefore covers ground which ought to be fully understood by architects and builders but possibly those not normally concerned with offices and warehouses may not be conversant with good practice. The Bulletin mentions but does not stress that panic is in some ways worse than the fire itself, hence the need to keep smoke out of stairways and escape passages by having self-closing cut-off doors. No mention is made, either, of the need to ensure that doors when opened do not reduce the width of the escape passage or stair.

Advice is given as to the authorities to be approached for guidance on escape matters, to which might be added the Fire Protection Officer of the county where such an office has been created.

Timber Notes

MOST of the changes in the timber market lately have been due to the activities of the Russian sellers. In softwood, they have offered 60,000 standards, of which 50,000 standards are redwood and 10,000 standards whitewood, for sale from those areas remaining open to shipping at prices which generally show a reduction on those quoted in Russian softwood sales this year.

The price for 7in unsorted redwood d.b. stays at the figure of £94 a standard c.i.f., but in some of the smaller sizes and in the boards, both in redwood and whitewood, there have been reductions. Most of them are 30s and £2 a standard lower than the July quotations, but some are larger, the unsorted redwood battens of 2in by 5 in and under being priced at £9 lower.

Such a price schedule would normally have led to a lot of buying by the importers, but in fact only about a fifth of the quantity offered was taken up in the stipulated time, though there has been some later selling. The reason for this apparent indifference among the importers towards this bargain sale was the belief that even better prices might be quoted on the market in the next few weeks. The Russians tried to safeguard buyers of 250 standards and upwards by offering a fall clause, which meant that, should there be any lowering of the Russian prices by the time shipment was made, then the lower prices would apply.

There is believed to be a good quantity of softwood still to be sold by Finland and Sweden, and these countries might try to force the slow pace of sales by dropping quotations considerably. Most of the importers have already bought to meet their estimated requirements up to next May, so they can afford to wait for bargains.

In the plywood market the Russians have been more drastic in their price changes. Plywood has dropped in value this year more than a quarter, making this one of the most depressed of the commodity markets. The Russians placed some 40,000 cu. metres of birch plywood on the market following the offer of the Government-held Russian birch plywood, and both sales proved highly successful. The Government stocks were sold, and the Russians have been able to dispose of most of their plywood.

Sharp reductions were announced by the Russians. Taking the list price of last year as the basis, the new prices showed a fall of 32 per cent where the purchase was 5,500 cu. metres or over, and there were smaller reductions down to 25 per cent for 250 cu. metres. Some importers combined in their purchasing to gain full advantage of the discount rate.

Prices asked by the Government in the plywood sale were on the low side, and only a small quantity of Canadian Douglas fir plywood remains unsold. This will probably go mainly to the building trade. The Government hardwood stock disposal was also quite successful, and there now remains a relatively small quantity of American red oak still to be sold. The Government softwood sale moves slowly, however, for there has been no change in the price ideas of the Board of Trade officials on the value of this wood.

As is customary at this time of the year, stocks in all sections of the timber trade are good. If the present rate of consumption can be taken as a guide, then the stocks will be adequate for many months to come, irrespective of what happens on the international market.

Laminated ceiling in Earley Generating Station.

Public Works and Municipal Services Congress

Thirty-four Papers on a wide variety of subjects will be presented during the 29 sessions of the Public Works and Municipal Services Congress to be held at Olympia, London, from November 12 to 16. The Exhibition, run in conjunction with the Congress, will continue until Saturday, November 17. After the Congress has been opened by its President, the Minister of Housing and Local Government, the first session will be held. All papers will be taken as read and the authors will briefly introduce their papers and speak at greater length in reply to the discussion.

PROGRAMME

Monday, November 12, 2.30 p.m. Official opening of the Congress and Exhibition by the Rt. Hon. Duncan Sandys, M.P., Minister of Housing and Local Government, President of the Congress Council. 3.0 p.m., "Essentials for a Modern Engineer," by Mr. A. S. Turner, M.I.Mun.E., A.M.I.C.E., Deputy County Surveyor, Somerset. "Problems in Underground Pipe Design and Pipe Laying," by Mr. N. W. B. Clarke, of the B.R.S. "The Control and Treatment of Industrial Wastes," by Mr. W. Fillingham Brown, B.Sc., M.I.C.E., F.I.P.H.E.

Tuesday, November 13, 10.30 a.m. "A County Highway Repair Depot and the Organization and Maintenance of Plant," by Mr. J. H. H. Wilkes, B.Sc., M.I.C.E., M.I.Mun.E., County Surveyor of Somerset, and Mr. F. B. Kelly, A.M.I.C.E., Chief Plant Superintendent, Somerset C.C. Central Repair Depot. "The Reconstruction of Cities," by Mr. Arthur Ling, B.A., A.R.I.B.A., A.M.T.P.I., City Architect and Planning Officer, Coventry. "Gas in the Production and Maintenance of Public Service Vehicles," by Mr. T. H. Pardoe, M.Inst.Gas E., M.Inst.F., Area Industrial Engineer, South Western Gas Board. "Heat Services by Coke in Municipal and School Buildings," by Mr. C. A. Deas, M.Inst.F., M.Inst.Gas E., Coke Officer, Eastern Gas Board. 2.30 p.m. "Modern Trends and Developments in Road Maintenance Technique," by Mr. J. R. Musgrave, A.M.I.C.E., A.M.I.Mun.E., Senior Assistant County Surveyor of Staffordshire, and Mr. J. V. Leigh, M.B.E., B.Sc., A.M.I.C.E., A.M.I.Mun.E., Assistant County Surveyor of Staffordshire. "Post-War Flat Development in Europe," by Professor R. A. Jensen, B.Arch., F.R.I.B.A., A.M.T.P.I. "Street Lighting Economics," by Mr. N. Axford, B.Sc., M.I.E.E., Manager, Plymouth District, South Western Electricity Board.

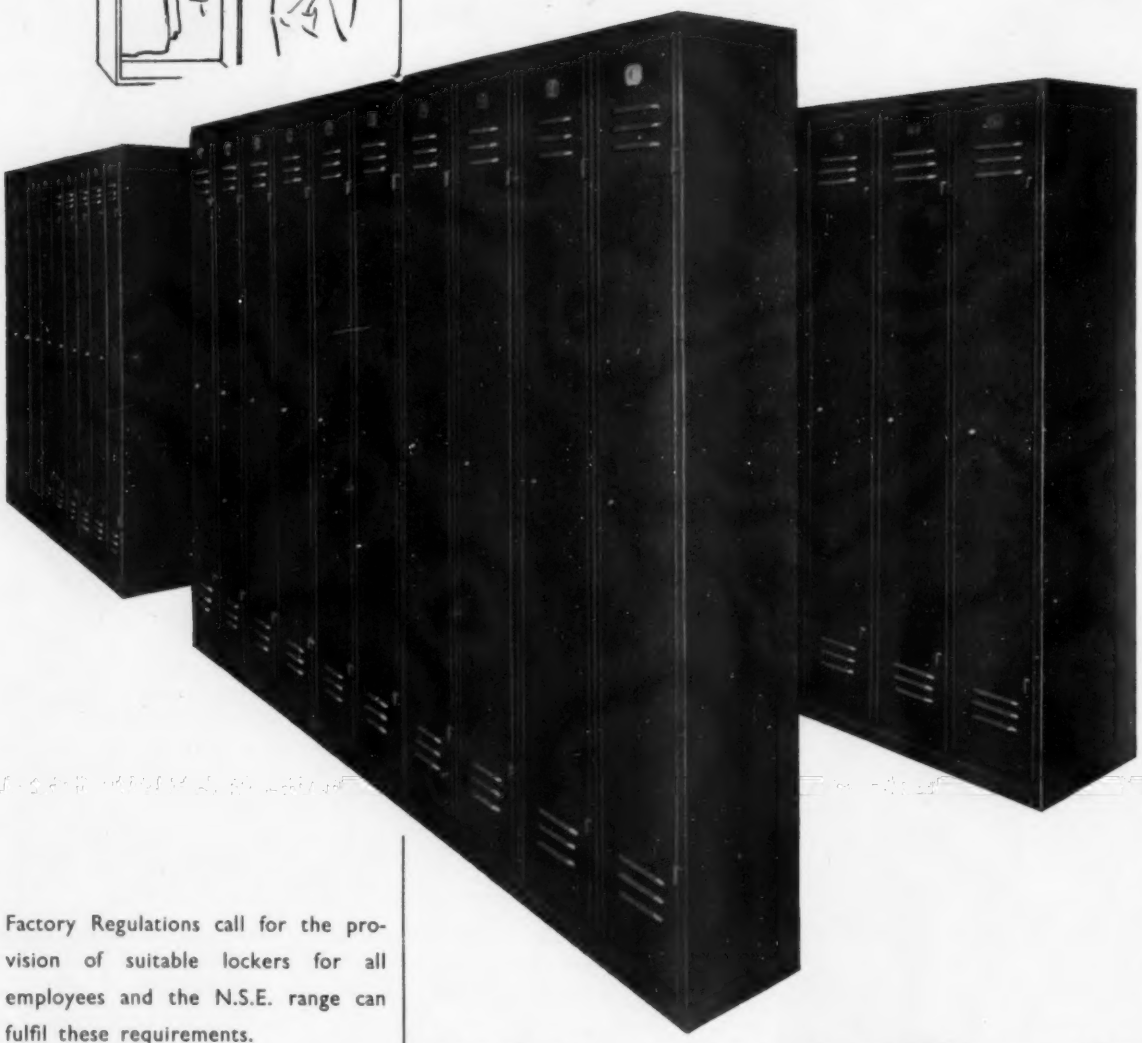
Wednesday, November 14, 10.30 a.m. "The Influence of Road Layout on Speeds and Accidents in Rural Areas," by Mr. G. Charlesworth, B.Sc., Ph.D., F.Inst.P., and Mr. T. M. Coburn, B.Sc. "Accident Studies Before and After Road Changes," by Mr. F. Garwood, M.A., Ph.D., F.S.S., and Mr. J. C. Tanner, M.A., F.S.S. "Accident Reports and Skidding Accident Sites," by Mr. C. G. Giles, B.Sc., A.Inst.P., and Miss B. E. Sabey, B.Sc. "Hygiene and Sanitation in the Fish Industry," by Mr. R. Spencer, Humber Laboratory, Food Investigation Organization of D.S.I.R., Hull. "Problems of Horticulture in a Seaside Resort," by Mr. E. W. Studley, A.H., R.H.S., F.Inst.P.A., Director of Parks, City of Portsmouth. 2.30 p.m. "The Importance of Control in Road Construction," by Mr. A. R. Lee, B.Sc., Ph.D., F.Inst.P. "Control in the Manufacture and Laying of Bituminous Materials," by Mr. H. G. Barnes, B.Sc., A.M.I.C.E. "Control in Mixing and Placing Concrete," by Mr. R. H. H. Kirkham, B.Sc., Ph.D., A.M.I.C.E. "Non-Destructive Tests of Roads and Structures," by Mr. R. Jones, B.Sc., Ph.D. "Development Plans: Their Form and Effects," by Mr. J. F. Q. Switzer, M.A., A.R.I.C.S., Department of Estate Management, University of Cambridge. "Some Aspects of Park Administration in an Industrial Area," by Mr. T. L. Ashton, N.D.H., D.Inst.P.A., Superintendent of Parks, Cemetries and Allotments, Borough of Keighley. "The Small-Holder: His Contribution to Britain's Food Problem," by Mr. J. W. Cassels, O.B.E., B.Sc., Director of Agriculture, County of Durham.

Thursday, November 15, 10.30 a.m. "Development of New Towns," by Lt.-Col. A. Borlase, T.D., M.I.C.E., M.I.Mun.E., Chief Engineer, Cwmbran (Mon.) Development Corporation. Session under the auspices of The British Waterworks Association—Debate on Drought. "The Repair and Improvement of Houses," by Mr. J. Marriott, M.I.Mun.E., F.S.I.A., Chief Health Inspector, Engineer and Surveyor, Wetherby R.D.C. 2.30 p.m. "Economic Efficiency of Transportation by Road and by Railway," twin papers by Mr. W. H. B. Cotton, M.I.Mun.E., A.M.I.C.E., County Surveyor of Durham, and Mr. C. E. R. Sherrington, O.B.E., M.C. M.A.(Cantab.), M.Inst.T., Director of the Research Information Division, British Transport Commission. "Radio-Activity and the Water Industry," by Mr. Arthur W. Kenny, M.A., B.Sc., F.R.I.C., Radio-Chemical Inspector, Ministry of Housing and Local Government. "Environmental Sanitation: Past, Present and Future," by Mr. G. W. Herrick, D.P.A., F.S.I.A., Chief Sanitary Inspector, Fulham M.B.C.

Friday, November 16, 10.30 a.m. "Re-Location of Employment," by Mr. L. W. Lane, A.M.T.P.I., A.R.I.C.S. "Factors Affecting the Concentration of Dissolved Oxygen in the Thames Estuary," by Mr. A. L. H. Gameson, M.A., and Mr. W. S. Preddy, M.Sc., of the Water Pollution Research Laboratory, D.S.I.R. "Mechanised Composting," by Mr. J. C. Wylie, B.Sc., M.I.C.E., A.M.Inst.P.C. 2.30 p.m. "Expansion of Small Towns, Planned and Unplanned," by Mr. D. W. Riley, M.T.P.I., M.I.Mun.E., County Planning and Development Officer, Staffordshire. "The Settlement of Sewage," by Mr. T. Stones, M.Sc., Ph.D., F.R.I.C., M.Inst.S.P., Sewage Works Manager and Chemist, Salford C.B. "Public Cleansing—Night and Day," by Mr. T. B. Finnie, M.Inst.P.C., Deputy Director of Cleansing, City of Glasgow. "Quarter-way Stage in a County Road Plan," by Mr. J. Drake, B.Sc., M.I.C.E., M.I.Mun.E., F.Inst.H.E., County Surveyor of Lancashire.

NSE

CLOTHES LOCKERS



Factory Regulations call for the provision of suitable lockers for all employees and the N.S.E. range can fulfil these requirements.

Lockers are produced in banks to suit individual layouts and are valuable either as full length lockers or with two or four individual compartments in height. Full details on application.

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Industrial Notes

● An interesting feature of the Daily Mail Ideal Home Exhibition at Olympia in March, 1957, will be a Canadian timber frame house. The house will incorporate the latest advances in modern living and is being designed by Architects Wells and Hickman. Builders and furnishers of the house will be Heal & Sons Ltd., Tottenham Court Road, London. The demonstration house is being sponsored by the British Columbia Lumber Manufacturers Association in co-operation with the Canadian Government. It will be a two storey frame structure with brick facing along the sides of the building and Cedar weatherboarding at the front and back. Various applications of Canadian timber, both structurally and decoratively, will be shown. Mr. G. C. Edgett, Timber Development Director of the B.C.L.M.A., said recently: "We have given the Architects a rather interesting challenge. We have asked them to produce an attractive design for a three bedroom house, costing no more than £3,500 which will have a spacious open plan, ample storage and cupboard space plus oil-fired controlled heating. We believe that these are features which the prospective British home-owner soon will be demanding. Our aim is to show how these amenities can be provided in a frame house without paying more than the cost of a traditional house without such attractions."

● We regret to announce the death of Mr. W. J. Skevington, Chairman of Joseph Freeman Sons & Co. Ltd., which occurred on Wednesday, September 19. Mr. Skevington, who was associated with the Building Industry for over 60 years, was responsible for the world-wide development and popularization of "Cementone".

● The Contractors' Plant Association has published a Handbook, which should be of great value to all concerned with contractors' plant. It contains in one volume a great deal of useful information relating to the hiring and operation of contractors' plant. In addition to the names and addresses of the members of the Association (both alphabetically and under counties), it includes the schedule of recommended rates of hire, the general terms and conditions for the hiring of plant, the Working Rule Agreement of the Civil Engineering Construction Conciliation Board and the agreements covering the Holidays with Pay schemes. There is also a section on legislation affecting contractors' plant and commercial road vehicles, comprising relative extracts from the Factory Act, the Building Regulations, the Road Traffic Act and giving comprehensive details of capacity, weights and measurements of a number of items of plant and the names of manufacturers and importers in classified lists. The price of the Handbook is 12s 6d including postage, and copies can be obtained from the Contractors' Plant Association at Hanover House, 73/78 High Holborn, London, W.C.1.

● Rubber Improvement Ltd. announce a trading profit for the year ended May 31, 1956, of £914,000 approximately, compared with £512,000 for the previous year. The final dividend declared on all the Ordinary Issued Share Capital of the Company is 40 per cent.

A new passenger lift, capable of accommodating 55 people, which has been installed at Queensway underground station. Lift contractors were Wadsworth & Sons Ltd., under the direction of the Lifts and Escalators Division of L.T.E. Frederick Sage & Co. Ltd., the sub-contractors for the lift cars, installed Warerite plastic panelling in two shades of green.

● The Ketton Portland Cement Co. Ltd. made a profit for the year ended June 30, 1956, of £149,178, after deduction of tax. The final dividend on the Ordinary Shares is 15 per cent, less tax, together with a bonus of 5 per cent less tax.

● Brick Investments Ltd. announce a profit for the past year of £15,799, after deduction of income tax. This compares with £13,015 declared for the previous year. The final dividend payable is 15 per cent less income tax on the Ordinary Shares, making a total distribution of 20 per cent for the year.

● Horseley Bridge & Thomas Piggott Ltd. announce a Group profit, after deducting taxation, of £126,143 for the year ended March 31, 1956. They announce a final dividend of 15 per cent on the Ordinary Shares.

● International Paints (Holdings) Ltd. celebrated the Company's 75th anniversary with a dinner held at the Savoy Hotel. Mr. C. R. Petrie, the Chairman and Managing Director, reviewed the growth of the Company during the course of his speech.

● The wedding took place on Friday, September 21, at Caxton Hall, followed by a church service at St. Simon Zelotes, of Mr. Francis Taylor, of Aldford Street, W.1, chairman and founder of Taylor Woodrow Ltd., building and civil engineering contractors, and Miss Christine Enid Hughes, of Reeves Mews, W.1, a director of Taylor Woodrow Homes Ltd., and Southern Province Farms Ltd.

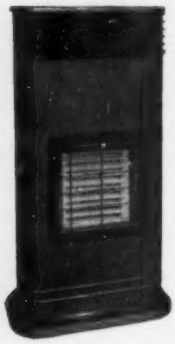
● Three new Directors, Mr. G. V. Cumbers, Mr. John A. Findlay and Mr. G. L. Gomm have been appointed to the board of Unity Structures Ltd.

● The Appliance Division of The English Electric Company Ltd. announce the appointment of Mr. L. C. Eaton to be sales representative in the South Western territory of the L.E.B. area. He will work from Queen's House, Kingsway, under Area Manager Mr. A. W. H. Bradstreet.

● F. Hills & Sons Ltd., of Stockton-on-Tees, manufacturers of flush and panel doors, windows and "Duramel" plastic faced plywood (previously known as "Durette") have appointed Mr. Ramsay Howarth as their representative in Scotland and Northern Ireland. Mr. Howarth's private address is: 90 Old Dalnottar Road, Old Kilpatrick, By Glasgow. Telephone: Bowling 1141.

● The new address of the Battelle Institute Limited is 24 Ryder Street, St. James's, London, S.W.1. Telephone No. Trafalgar 1621.

NEW PRODUCTS



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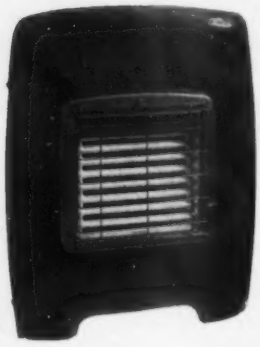

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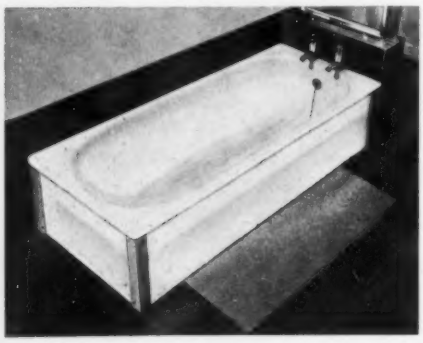
Two new gas fires have been added to the range of Wm. Sugg & Co. Ltd. The first of these, the "Sussex", Fig. 1, is a convector radiator with a gas rating of 9000 B.Th.U/Hr. The fire measures 31in high by 16¾in wide by 9in deep. The body and surround are made of sheet steel and the louvre grill, base and front frame of aluminium. The second fire, the "Vincent", Fig. 2, is a radiant hearth model with a gas rating of 19000 B.Th.U/hr. Overall measurements are 25in high by 20½in wide by 8¾in deep, with 6in projection from fireplace face. Body and surround are of sheet steel and trivet and coves of anodised aluminium. In both fires the outer casings are completely detachable. The "Sussex" is finished in gold and the "Vincent" in bronze and gold stove enamel.

★

The Atlanta bath, Fig. 3, is the latest to be produced by Bilston Foundries Ltd. It is shallow and flat-bottomed. The panels are 17in to 21¾in high with adjustable feet and 15¾in without feet. The outside measurements are 5ft 6in long by 2ft 4¾in wide and internally the bath measures 5ft 0¼in long by 2ft 0¼in wide by 15¼in deep. Available in several colours.



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The 6ft bath, Fig. 4, manufactured by Wemyss Woodhouse Ltd., is constructed from Cellobond polyester resins (made by British Resin Products Ltd.) and glass fibre. The bath is 31in wide and weighs only 45lb. It is in self coloured white; soapy water is recommended by the makers for cleaning after use. It is claimed that the bath itself is never cold to the touch and that as the material is a good heat insulator the bath water keeps hot longer. The same claims are made for the universal sink unit, Fig. 5, which can be easily drilled or cut.

★

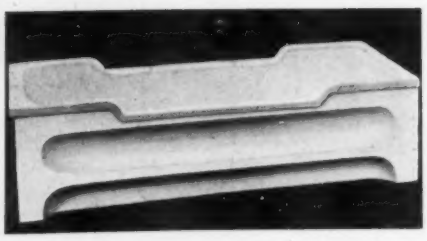
The "Staffa" barge crane by Chamberlain Industries Ltd., is equally suitable for fixed mounting or for mounting on a prime mover to operate as a truck crane although it was originally designed for the well in the bow of a barge. It is hydraulically operated and has a capacity of 10cwt at 30ft radius with lifting speeds up to 150ft per minute derricking speeds from 12/30ft radius in 17 seconds and a slewing speed of 4 r.p.m. The crane has a 30ft Cantilever lattice type jib and the superstructure carries a Ford 4-cylinder diesel engine directly coupled to a Plessey pump with capacity of 24 gallons per minute.

★

Pluvex roof felt is now available with a coat of ceramic sand in red or green. Manufactured by the Ruberoid Co. Ltd., this felt is supplied in rolls of 12 sq yd measuring 36in wide.

★

Hyflux-al is a new soldering flux produced by Whiffen and Sons Ltd. It is based on hydrazine and prepared for use in conjunction with solder. It is claimed that the hydrazine compound is a powerful reducing agent which removes the oxide film on aluminium and decomposes and/or volatilizes quickly at 300 deg C without leaving a residue, if soldering is carried out at the correct temperature.



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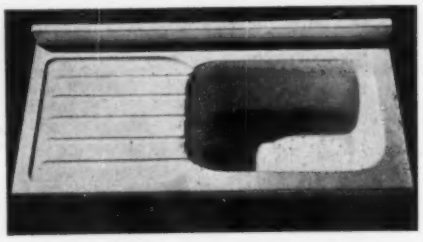
International Paints Ltd., have brought on to the market a new type of paint finish called Policrome. The Policrome film is multi-coloured, two or more colours being simultaneously applied to the surface in one single spray coat. It is claimed that the multiple colours exist separately within the Policrome finish and upon being sprayed, create an interlacing colour network. The thousands of flecks of colour blend to give an effect of vibrant colour harmony from one can of paint in one application. This finish has been in use for some time in Canada and U.S.A. and the makers state that it may be applied to concrete, plaster, canvas, wood, building boards, lining papers and various metals and plastics. It is manufactured in 17 basic colours and no thinners are required. It may be generally described as a washable semi-flat paint which claims the following properties: dirt and grease do not settle on it, it is hard to scratch or chip, touching-in is not noticeable, improves rather than impairs the sound absorption value of acoustic ceilings, has high resistance to oils and acids and does not emit spray dust or fog when being sprayed. It is quick drying and has a spreading capacity of 20/25 sq yds per gallon.

★

Dexion Ltd. have increased the range of their slotted angle by the introduction of two new sizes. No. 140 with equal flanges of 1¾in by 1¾in designed to bolt together with all other Dexion angles. It is smaller than sizes 225 and 300 and is designed for factory, store or office jobs where the strength of the larger members is not needed or for lightly stressed members in bigger structures. No. 112 is a half-sized version of No. 225 and is designed for models, display stands and frames, small laboratory and workshop frameworks, etc. Both the new components are available in steel and aluminium alloy. Five new sizes of 19 s.w.g. stove-enamelled steel shelves are also available in battleship grey finish. All are 36in long with flanges of 1¼in and the depths are 12, 18, 24, 30 and 36in.

★

Permanite Ltd. have introduced Permacolor which is a new coloured roofing felt, claimed to be dust less. It is supplied in green or red finish and in rolls measuring 12yd by 1yd.



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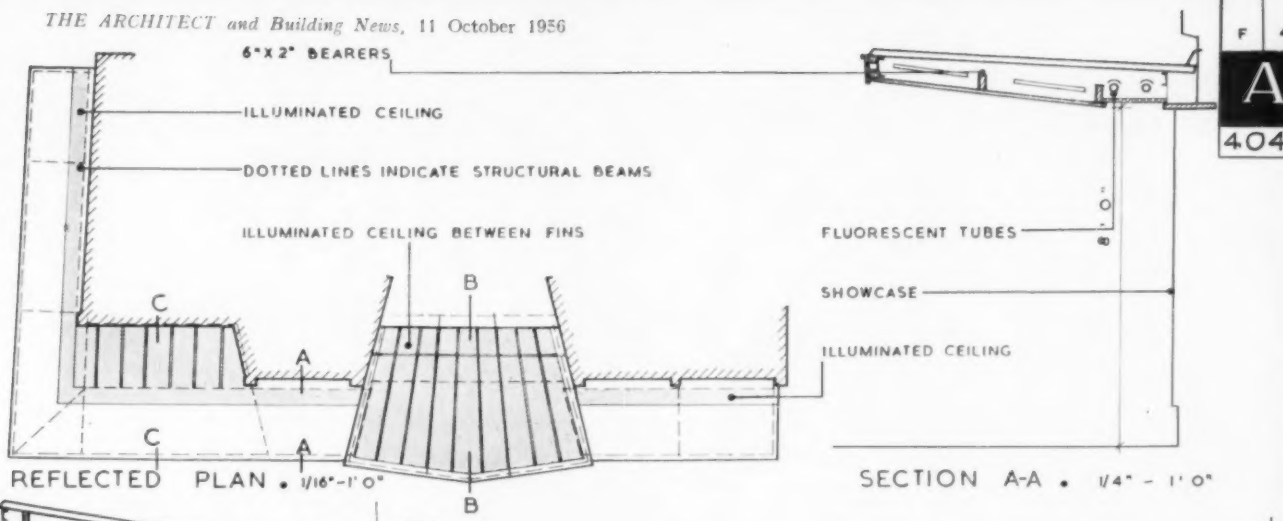
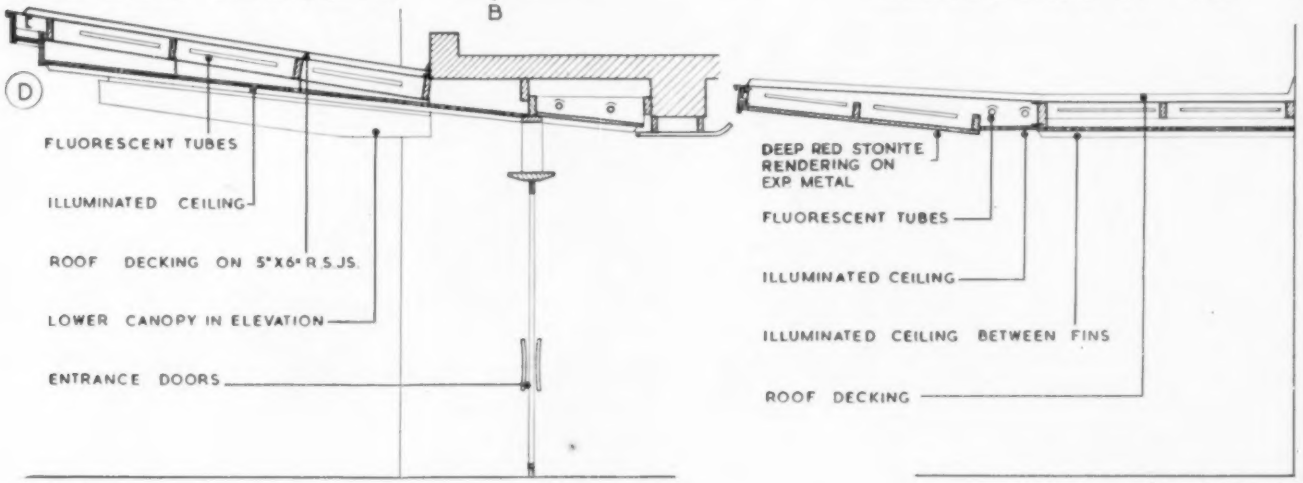


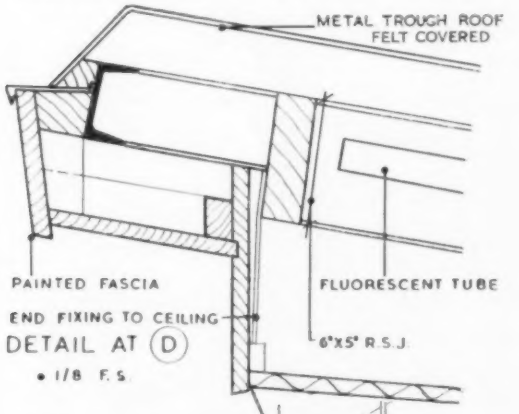
REFLECTED PLAN • 1/16"-1'0"

SECTION A-A • 1/4" - 1'0"

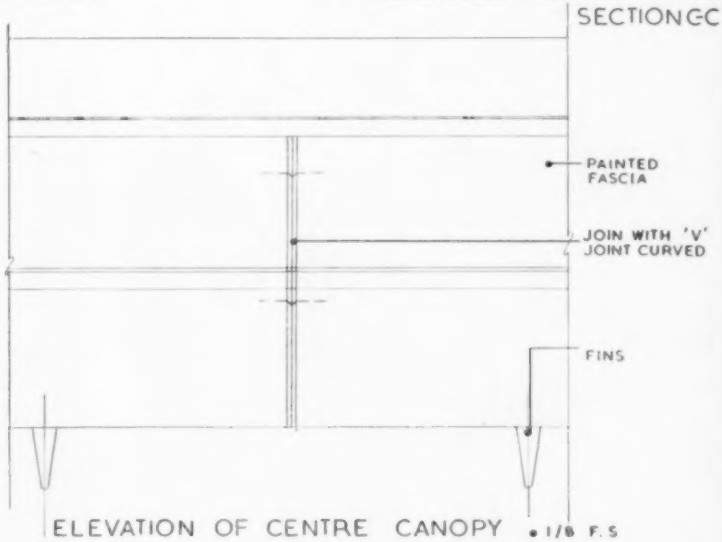


SECTION B-B • 1/4" - 1'0"

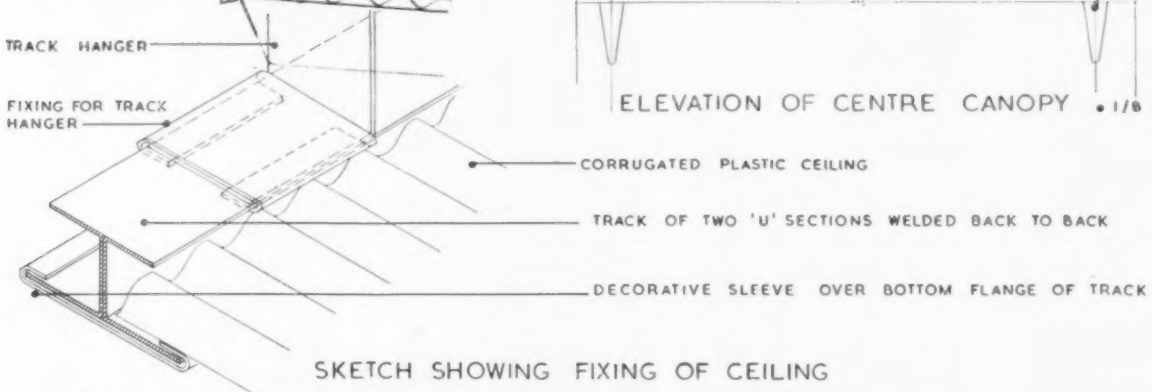
SECTION C-C



DETAIL AT (D) • 1/8 F.S.



ELEVATION OF CENTRE CANOPY • 1/8 F.S.



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CANOPY DETAIL, CINEMA, BIRMINGHAM

ARCHITECT: H. WERNER ROSENTHAL

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CONTRACT • NEWS •

*Notes below give basic data of contracts open under locality and authority which are in a bold type. References indicate : (a) type of work (b) address for application. Where no town is stated in the address it is the same as the locality given in the heading (c) deposit (d) last date of application (e) last date and time for submission of tenders. Full details of contracts marked * are given in the advertisement section.*

OPEN

BUILDING

CUMBERLAND C.C. (a) Erection of (1) three permanent classrooms and corridor at Harrington junior school, nr. Workington; and (2) one transportable timber classroom at Bowness-on-Solway school. (b) County Architect, 15 Portland Square, Carlisle. (e) (1) October 31 and (2) October 22.

* * *

DEAL B.C. (a) 40 houses in pairs and blocks of four on St. Martin's Road estate. (b) Borough Engineer, Municipal Offices, Queen Street. (c) 2gns. (d) October 19. (e) November 6.

* * *

DEVON C.C. (a) Erection of a police house at Copplestone. (b) County Architect, 97 Heavitree Road, Exeter. (c) 2gns, by cheque payable to Council.

* * *

DEVON C.C. (a) Erection of classroom, kitchen, stores, etc., at Cullompton primary school. (b) County Architect, 97 Heavitree Road, Exeter. (c) 2gns, by cheque payable to Council.

* * *

DURHAM C.C. (a) Adaptations at Stockton Technical College, Oxbridge Avenue. (b) County Architect, South Street. (d) October 17.

* * *

EAST KESTEVEN R.C. (a) Two pairs of bungalows at Osbournby. (b) Council's Architect, Council Offices, 14 Northgate, Sleaford. (e) October 27.

* * *

EIRE—KERRY. (a) New Church of the Immaculate Conception at Killeentierna. (b) Chevalier Patrick J. Sheahan, 47 O'Connell Street, Limerick. (c) £52 10s. (e) October 26.

* * *

ESSEX C.C. (a) Kitchen and dining room at Hockley High Road primary school, to cost approx. £8,000. (b) County Architect, County Hall, Chelmsford. (d) October 20.

* * *

HASTINGS CORPORATION. (a) (1) Two prefabricated practical rooms and boiler chamber at Hastings secondary school for boys, Priory Road; and (2) two classrooms, cloakrooms and toilets at Red Lake infants' school, Ore. (b) Borough Engineer, 37 Wellington Square. (c) 3gns. (d) October 15. (e) November 26.

* * *

KESTEVEN C.C. (a) Two pairs of police houses at Radcliffe Road, Stamford. (b) County Architect, County Offices, Sleaford. (e) October 19.

* * *

LANCASHIRE C.C. (a) One pair of police houses at Lancaster Drive, Clayton-le-Moors, nr. Accrington, and one pair at St. Albans Road, Darwen. (b) County Architect, P.O. Box No. 26, County Hall, Preston. (d) October 15, quoting Ref. A/MG.

* *

LEEDS REGIONAL HOSPITAL BOARD. (a) Carrying out alterations to provide dining accommodation at Bootham Park Hospital, York. (b) Board's Architect, Park Parade, Harrogate. (c) 2gns. (d) October 16. (e) November 6.

M

LEATHERHEAD U.C. (a) 16 dwellings at Great Bookham. (b) Council's Engineer, Red House. (c) 2gns. (e) October 26.

* * *

LEICESTER C.C. (a) Alterations and additions at Ashby Ivanhoe secondary school. (b) County Architect, 123 London Road. (e) November 3.

* * *

LIVERPOOL C.C. (a) (1) 13 houses, Saunby Street, Liverpool, 19; (2) 5 houses, Mab Lane, Liverpool, 12; and (3) 16 houses, Greaves Street, Liverpool, 8. (b) City Architect, Blackburn Chambers, Dale Street, Kingsway, Liverpool, 2. (c) 2gns each contract. (e) October 18.

* * *

LONDON—CHINGFORD B.C. (a) (1) 28 houses at Kimberley Way, Chingford; and (2) 24 houses at The Bramblings, Chingford. (b) Borough Engineer, Town Hall, Chingford, E.4. (c) 2gns each contract. (e) (1) October 31; (2) November 28.

* * *

LONDON—WALTHAMSTOW B.C. (a) Conversion of No. 880 Forest Road, Walthamstow, E.17, into seven bed sitting-room flats. (b) Borough Architect, Town Hall. (c) 2gns. (e) October 19.

* * *

LOWESTOFT B.C. (a) Erection of (Group A) 32 houses, (Group B) 40 houses, (Group C) 24 houses, and (Group D) 40 houses at Beeches estate. (b) Borough Engineer, 49 High Street, Lowestoft. (c) 2gns. (e) October 26.

* * *

LUTON B.C. (a) (1) Caretaker's house at the St. Joseph's Roman Catholic primary school; and (2) proposed alterations to provide new classroom accommodation at Leagrave primary junior school. (b) Borough Architect, Town Hall. (c) 2gns each contract. (e) November 6.

* * *

LUTON B.C. (a) Erection of proposed staff room and lavatory accommodation at Surrey Street C.P. infants' school. (b) Borough Architect, Town Hall. (c) 2gns. (e) October 22.

* * *

MANCHESTER CORPORATION. (a) Carrying out alterations and extensions to Abbey Hey primary school. (b) City Architect, P.O. Box 488, Town Hall. (e) October 24.

* * *

MIDDLESEX. (a) 72 flats with roads, paths, garages at Eastcote, Middlesex. (b) Hugh C. Duncan, Esq., 9 Hertford Street, Park Lane, London, W.1. (c) 5gns from contractors selected to tender.

* * *

MITFORD AND LAUNDITCH R.C. (a) (1) Erection of one pair of houses and two pairs of bungalows, together with site preparation and external services, at Beeston; (2) alterations to the existing sewage disposal plant, consisting of construction of approx. 800ft of irrigation drain, at Billingford; and (3) construction of a sewage disposal plant to serve 53 dwellings, main drainage and roadworks to the new housing site, at Shipdham. (b) Mr. Harold Marsh, 4A Market Place, Dereham, Norfolk. (c) 2gns. (e) October 27.

* * *

NEW FOREST R.C. (a) Erection of (1) 26 pairs, one block of four and one block of six houses, forming Contract No. 6, Site No. 53, Langdown Croft, Hythe; (2) three blocks of six houses forming Contract No. 5, Site No. 56, Salisbury Road, Totton; and (3) two pairs of bungalows forming Contract No. 6, Site No. 56, Salisbury Road, Totton. (b) Council's Engineer, Appletree Court, Lyndhurst. (c) 2gns. (e) October 22.

* * *

N. IRELAND—DOWN EDUCATION COMMITTEE. (a) Erection of a new primary school in prefabricated timber units at Knockbreda. (b) Messrs. McCarthy and Lilburn, Scottish Provident Buildings, Belfast. (c) 5gns. (e) October 25.

* * *

NORTHUMBERLAND C.C. (a) Adaptation of "Lyndhurst" and "Yearsley", Delaval Road, Whitley Bay, for use as a further education centre. (b) County Architect, County Hall, Newcastle upon Tyne, 1. (d) October 18.

* * *

RUNCORN U.C. (a) 14 bungalows and 28 houses in Windsor Grove. (b) Council's Surveyor, Town Hall. (c) 2gns. (e) November 2.

* * *

ST. ALBANS C.C. (a) Erection of 4 shops, 4 flats and 8 garages at Westfields estate. (b) City Engineer, 16 St. Peter's Street. (c) 2gns. (e) October 22.

* * *

SAFFRON WALDEN R.C. (a) Two bungalows at Birchanger. (b) Council's Clerk, Council Offices, Debden Road. (e) October 27.

* * *

SCOTLAND—BRIDGE OF ALLAN BURGH COUNCIL. (a) Several works in connection with the erection of 18 houses at Castleview Drive, Blackdub—Sixth Development. (b) Town Clerk, Burgh Chambers. (d) October 15.

* * *

SCOTLAND—CAITHNESS C.C. (a) Erection of a new primary school at Wick. (b) County Architect, County Offices, Wick. (e) November 12.

* * *

SMETHWICK B.C. (a) Erection of additions and adaptations to existing buildings at the Housing Estates Department. (b) Borough Engineer, Council House, in writing. (c) 2gns, by cheque payable to The Borough Treasurer. (e) November 1.

* * *

SOMERSET C.C.—EDUCATION COMMITTEE. (a) (1) Yeovil Girls' High School; (2) Keynsham Wellsway primary school. (b) County Architect, Park Street, Taunton, with an assurance that applicant has necessary financial and material resources and organization to undertake the work. (c) 2gns each contract. (d) October 15.

* * *

SOUTH SHIELDS B.C. (a) 97 houses on Whiteleas estate. (b) Borough Engineer, Town Hall. (c) 2gns. (e) November 6.

* * *

SWANSEA B.C. (a) Cloakroom and lavatory accommodation at Neath Road School, Morriston. (b) Borough Architect, The Guildhall. (c) £2. (d) October 19.

* * *

WEST KENT MAIN SEWERAGE BOARD. (a) Erection of a laboratory at the sewage purification works, Long Reach, Dartford, Kent. (b) Board's Secretary, 20 Blyth Road, Bromley, Kent. (c) 2gns. (e) October 29.

* * *

WIRKSWORTH U.C. (a) 12 houses with consequent works. (b) Mr. J. L. Bakewell, 25 Chapel Street, Belper. (c) 2gns. (e) November 3.

PLACED

Notes on contracts placed state locality and authority in bold type with (1) type of work, (2) site, (3) name of contractor and address, (4) amount of tender or estimate. † denotes that work may not start pending final acceptance, or obtaining of licence, or modification of tenders, etc.

LONDON S.E. (1) Nine-storey flats for St. Thomas's Hospital Governors. (2) Royal Street, S.E.1. (3) Wates Ltd., 1258 London Road, Norbury, S.W.16. (4) £250,000.

* * *

ATOMIC ENERGY AUTHORITY. (1) 74 houses for scientists. (2) Harwell, Berks. (3) F. J. Minns and Co. Ltd., St. Aldate's, Oxford. (4) £500,000.

* * *

LEEDS CORPORATION. (1) 126 houses. (2) Various estates. (3) West and Sons (Leeds) Ltd., Westley Road, Leeds.

* * *

LONG EATON U.D.C. (1) 174 houses and bungalows. (2) Sawley. (3) F. Perks and Son Ltd., Bridge Street, Long Eaton, Notts. (4) £239,250.

* * *

LEEDS. (1) New buildings at Leeds Grammar School. (3) J. H. Wood and Co. Ltd., St. Columba Street, Leeds.

* * *

NORTHAMPTON E.C. (1) Stage 2 of Grammar School for Girls. (3) Simcock and Usher Ltd., of Northampton. (4) £66,762.

* * *

RAWTENSTALL CORPORATION. (1) 75 houses. (2) Balladen Estate. (3) A. Spencer and Sons Ltd., of Accrington. (4) £89,361.

MIDDLESBROUGH. (1) Erection of secondary school. (2) Prissick Farm. (3) A. V. Clerey and Sons, 14 Frederick Street, Sunderland. (4) £152,489.

* * *

BRIGHTLINGSEA U.D.C. (1) 52 houses and shops. (2) Council's estate. (3) T. J. Archer and Co., Great Yeldham. (4) £75,688.

* * *

BRENTFORD. (1) Extensions to Phoenix Works, for R. B. Pullin and Co. Ltd. (2) Great West Road. (3) Gee, Walker and Slater Ltd., 100 Park Lane, London, W.1. (4) £188,000.

* * *

WORCESTERSHIRE C.C. (1) Extensions to Four Pools Lane School. (2) Evesham. (3) Espley and Co. Ltd., Evesham, Worcs. (4) £86,250.

* * *

LANCASHIRE C.C. (1) School (C. of E.). (2) Cartmel Priory. (3) Thompson and Jackson Ltd., of Lancaster. (4) £94,463.

* * *

HEREFORDSHIRE C.C. (1) First instalment of college. (2) Broadlands. (3) John Williams and Co. (Cornwall) Ltd., St. Austell, Cornwall.

* * *

CUCKFIELD R.D.C. (1) 42 flats. (2) Hassocks. (3) Saunders (Contractors) Ltd., London Road, Burgess Hill, Sussex. (4) £60,798.

* * *

LONDON COUNTY COUNCIL. (1) Day school for delicate children. (2) Avenue Road, Hampstead. (3) Howard and Co., 11 Broad Court, London, W.C.2. (4) £54,708. (1) Extension to Haverstock School. (2) Hampstead. (3) Poolman (Builders) Ltd., Hendon, N.W. (4) £27,415.

* * *

ASHBY-DE-LA-ZOUCH COUNCIL. (1) 90 houses, 2 shops. (2) Worthington. (3) George Wimpey and Co. Ltd., Wollaton, Nottingham. (4) £161,818.

* * *

LYTHAM ST. ANNE'S B.C. (1) Crematorium. (2) Park Cemetery. (3) Keenan and Yates Ltd., Lord Street, Lytham St. Anne's. (4) £35,000.

* * *

PORTSMOUTH CORPORATION. (1) Rebuilding war damaged wing, Foster Hall. (3) Direct labour. (4) £24,189.

* * *

CHESHIRE C.C. (1) Secondary school. (2) Macclesfield. (3) Cooper Bros. and John Clayton Ltd., Catherine Street, Macclesfield.

* * *

HEYWOOD B.C. (1) 96 flats. (2) Hardfield. (3) J. Hobson and Sons Ltd., Summer Street, Rochdale.

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KORODUR Heavy Industrial Flooring is a unique, pure quartz composition. Once laid it is permanently unaffected by exceptionally heavy wear including the regular passage of tracked or other massive traffic, and will bear pressures of up to sixty tons with ease. KORODUR is impervious to fire, oils, petrol, water and a wide variety of chemicals and acids. Full test reports on KORODUR are available on application to the SURFEX FLOORING COMPANY LIMITED who are the sole agents for KORODUR. KORODUR can be machine laid by our own team of experts.

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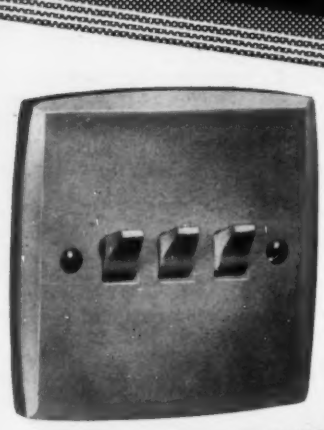
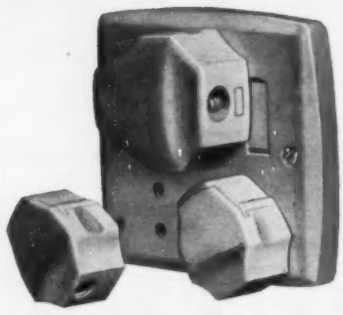
NEW DAY





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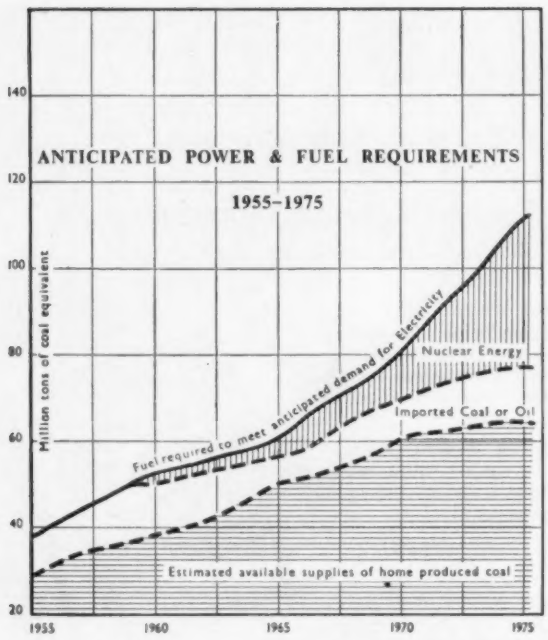

Electricity from Nuclear Energy

A 20-year development programme

Britain's nuclear power station construction programme will go far to offset the growing shortage of coal in the next two or three decades.

The First Ten Years

Work will start on the first two nuclear power stations in 1957. These will each have two gas-cooled reactors and the stations will be in operation by 1960/61. Two further gas-cooled reactor stations — each housing two reactors of improved type — to be begun in 1958/9 will come into service by 1963. The output of these four stations will be between 400,000-800,000 kilowatts.

The construction of two groups of four stations each will begin in 1960 and 1961/2 and they will be supplying electricity to the Grid by 1963/4 and 1965 respectively. The first group of stations will probably have one gas-cooled reactor each. The second will probably utilise liquid-cooled reactors — one high-rated reactor each. These stations will add well over 1,000,000 kilowatts to the nation's power resources.

The Second Ten Years

By 1975, it is anticipated that nuclear reactor power stations in Britain will have an aggregate installed capacity of between 10,000,000 and 15,000,000 kilowatts. Since these stations will be operated as base load stations working at full output for twenty-four hours a day they will be responsible for possibly half the units generated in the country.

In ten years' time—1,500,000 to 2,000,000 kilowatts of nuclear power. In twenty years' time—10,000,000 to 15,000,000 kilowatts of nuclear power, equivalent to 40-50,000,000 tons of coal a year.

N

OFFICIAL ANNOUNCEMENTS

APPOINTMENTS • CONTRACTS • TENDERS

Rate 1/6 per line, minimum 3/- *Close for press 1st post Monday for following Thursday Issue*

APPOINTMENTS

AIR Ministry Works Design Branch requires in London and Provinces Architectural Assistants experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings.

Salaries in London up to £925 p.a. (men) and £831 (women). Lower in Provinces. Starting pay dependant on age, qualifications and experience. Long-term possibilities with promotion and pensionable prospects. Five-day week, 3 weeks 3 days' leave a year. Liability for overseas service. Normally natural born British subjects. Write stating age, qualifications, employment details, including quoting Order No. Borough 1,000. [2674

APPLICATIONS are invited for appointment to the post of

ARCHITECT

in the Lands and Works Department,

GIBRALTAR.

The post is permanent and pensionable and on probation for two years. Salary scale £720x£24 to £840 then £960x£30 to £1,200 per annum. Entry into the scale will be in accordance with post graduate experience. Leave on full salary and return passages to U.K. for officer and wife granted once every two years.

Candidates must be A.R.I.B.A. and have good knowledge of design and construction. Duties will include design and execution of building projects. The successful candidate will work under the Commissioner of Lands and Works and is required to assume duties early December, 1956.

Unfurnished quarters and basic furniture, if available, will be provided at rents not exceeding 10% of salary and 3% of value respectively.

Applications stating qualifications, age, previous experience and enclosing testimonials, a birth certificate and a recent photograph should reach the Colonial Secretary, Gibraltar, not later than November 8, 1956. [2773

ATOMIC ENERGY RESEARCH ESTABLISHMENT HARWELL

has a vacancy for an

ARCHITECTURAL ASSISTANT

to prepare sketch schemes, working drawings and details for works of extension, conversion and adaptation to existing buildings. The range of work is very wide and many aspects are of a novel nature.

Applicants should be of at least Inter. R.I.B.A. standard and have had at least three year's experience in an Architect's office.

Salary: £505 (at age 21)—£795 p.a. (Highest starting salary £695.)

Contributory Pension Scheme, five day week, excellent working conditions and generous leave allowance.

Note: Married officers living outside the Establishment's transport area will be eligible for housing under Authority arrangements or, alternatively, substantial assistance towards legal expenses incurred in house purchase will be available.

Send postcard for application form, which must be returned by October 22, 1956 to Establishment Officer, A.E.R.E., Harwell, Didcot, Berks, quoting reference 624/184. [2765

BOROUGH OF ROYAL LEAMINGTON SPA

ARCHITECTURAL DRAUGHTSMAN, GRADE II

APPLICATIONS are invited for the above post in the Borough Engineer's Department within the salary scale of A.P.T. II.

Candidates should be a competent draughtsman with a knowledge of building construction. Experience in the supervision of outside works would be an advantage.

Completed forms of application, which are obtainable from the Borough Engineer, should be returned to reach his office not later than October 24, 1956.

JAMES N. STOTHERT,
Town Clerk.

Town Hall,
Leamington Spa. [2766

COUNTY BOROUGH OF EAST HAM

JUN. ASST. PLANNING OFFICER

GRADE I £530-£610. Borough Engineer's Department. Plus London Weighting. Salary above minimum and subsistence may be paid subject to conditions. Details and form from Town Clerk, E.6. Closing date October 22, 1956. [2771

APPOINTMENTS—contd.

COUNTY BOROUGH OF GRIMSBY

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT

APPOINTMENT OF SENIOR PLANNING ASSISTANT

APPLICATIONS are invited for the appointment of a Senior Planning Assistant in the Borough Engineer and Surveyor's Department at a salary in accordance with Grade III of the A.P.T. Division of the National Scale of Salaries (£640 per annum increasing by annual increments of £25 to £765 per annum.)

The appointment will be subject to the conditions of service of the National Joint Council, terminable by one month's notice on either side, and to the provisions of the Local Government Superannuation Acts. The successful candidate will be required to pass a medical examination.

Applicants should be suitably qualified by examination, with experience of planning control and work involved in the preparation and presentation of Comprehensive Development Maps. Urban Estate experience would be an advantage.

Housing accommodation can be provided for the successful candidate, if married.

Applications giving details of age, qualifications and experience, together with copies of two recent testimonials, must be suitably endorsed and delivered to the undersigned not later than first post on Saturday, October 20, 1956.

J. V. OLDFIELD, M.Inst.C.E., M.T.P.I.,
Borough Engineer and Planning Officer.

Municipal Offices,
Town Hall Square,
Grimsby.
September 1956. [2756

GOVERNMENT OF NORTHERN IRELAND

ARCHITECTURAL ASSISTANTS

APPLICATIONS are invited from Architectural Assistants with recognised training and fair experience for unestablished posts in the Chief Architect's Branch, Directorate of Works, Ministry of Finance.

The salary scale including pay supplement is £469 rising to £761. The inclusive starting pay of candidates who have passed the R.I.B.A. Intermediate Examination will be £596. Entry points for other candidates will be fixed in relation to their ages, e.g., £469 at age 21—£549 at age 25 or over. This scale is under review.

Preference will be given to candidates who served in H.M. Forces in the 1914-18 or 1939-45 wars, provided that such candidates are, or within a reasonable time will be, able to discharge the duties efficiently.

Application forms may be obtained from the Director of Establishments, Ministry of Finance, Stormont, Belfast. [2776

BOROUGH OF ELLESMERE PORT

APPOINTMENT OF ARCHITECTURAL ASSISTANT

APPLICATIONS are invited from experienced men for the above appointment on the permanent salaried staff of the Borough Engineer and Surveyor. Applicants must have completed their professional training and have had a good general architectural experience, preferably in a Local Government Department, and preference will be given to those who have passed the preliminary examination of the R.I.B.A. The post is a superannuated one within Grade II—III (£595—£765 per annum) of the A.P.T. Division of the National Salary Scales. A weekly tenancy of a Council house will be offered to the successful candidate on appointment if he reasonably requires accommodation.

Applications, stating age, qualifications, experience and giving the names and addresses of two referees, must reach me by not later than Monday, October 29, 1956.

R. J. BERNIE,
Town Clerk.

Municipal Offices,
Ellesmere Port,
Cheshire.
October 1, 1956. [2768

APPOINTMENTS—contd.

COUNTY BOROUGH OF SOUTHEND-ON-SEA EDUCATION COMMITTEE

Principal:
T. L. MORGAN, M.Sc., A.M.I.C.E., A.M.I.Struct.E.

APPLICATIONS are invited for the following posts:

Studio Master in the School of Architecture (Asst. Grade B). Salary scale £652 x £25—£1,025 with additions for training, graduation and good honours degree.

Further particulars and forms of application may be obtained from the undersigned (stamped addressed foolscap envelope).

Completed forms should be returned within 14 days to the Principal, Municipal College, Victoria Circus, Southend-on-Sea.

D. B. BARTLETT,
Chief Education Officer.

Education Office,
Warrior Square, Southend-on-Sea. [2767

BANFF COUNTY COUNCIL invite applications for the post of County Architect and Planning Officer on salary scale £1,415x£52—£1,675 per annum. J.N.C. for Chief Officials (Scotland) conditions apply and a car allowance is payable under the Council's scheme.

Applications should have extensive experience of local authority architectural work, particularly school work, as there is a large capital programme to be undertaken and should be familiar with planning procedure to the stage of submission of the Development Plan and dealing with planning applications.

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DOWSETT Engineering Construction Limited require Quantity Surveyors for extensive Building and Civil Engineering Contracts in the North East of England. Good allowances and salaries will be paid and permanent superannuated positions may be offered to selected personnel after a probationary period. Written applications will be treated in strict confidence and should give age, qualifications, personal details as to education and previous appointments held, with remuneration received, to Director, 50/52 Scotswood Road, Newcastle upon Tyne, 4. [2754

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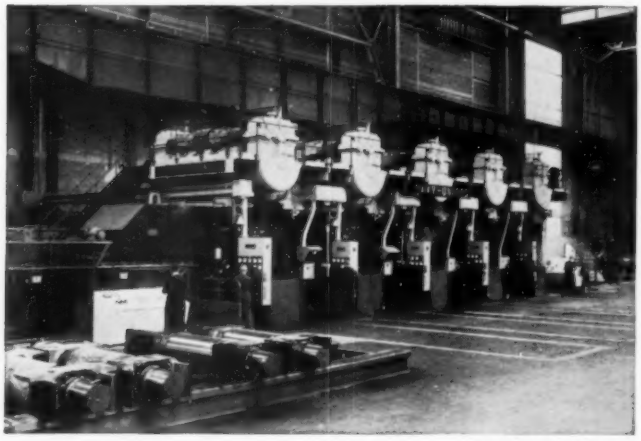

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